THE JOURNAL

OF THE

Michigan State Medical Society

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DEPARTMENT OF SOCIETY ACTIVITY

ARTICLE 2—PURPOSE

Section 1. The purposes of this Society are to promote the science and art of medicine, the protection of public health and the betterment of the Medical Profession; and to unite with similar organizations in other States and Territories of the United States to form the American Medical Association.

114th Annual Meeting: This issue contains the program for our 114th annual meeting to be held in Battle Creek September 11 to 13. The completed program will be published in the September issue. This issue, the Battle Creek number, also contains articles on Battle Creek, its hospitals, medical activities and a historical sketch of the Calhoun County Society. Programs for the scientific sessions are perfected. A group of outstanding clinicians will participate, thus assuring an attractive meeting.

Members are urged to note the dates and plan to attend. The Calhoun County profession will act as capable hosts and assure you a profitable and entertaining time.

Upper Peninsula Annual Meeting: The program for this meeting was published in the July issue. The dates are August 16 and 17 and the place Ironwood. Every member of the State Society is invited.

Medical History: While they last, two volumes of the Medical History of our State Society may be secured by sending five dollars to the State Secretary.

Cleveland A. M. A. Meeting: Michigan's delegates will submit a complete report on the Cleveland meeting at the annual meeting in Battle Creek. The detailed minutes of the Cleveland session have been printed in the *Journal of the A. M. A.*

DR. WM. T. DODGE

On June 7 there passed on from this world one of the grand men of Michigan—Dr. Wm. T. Dodge. To fully record his life's record and his medical activities would require a volume, for his was truly a life of service, deeply dyed with human kindness and unfailing loyalty to his fellow man.

Born in Barry County in 1860, after a common school education he graduated from the medical department of Michigan's University in 1880. This was followed by post-graduate work in New York and then he began practice in Marlette in 1882. In 1890 he located in Big Rapids, where he remained in active practice till 1929, retiring because of physical infirmities.

Turn to our Society's archives and one will find record of his outstanding career. Though located in what was designated as the lumber country, he reflected in his practice the progress of scientific medicine. Frequent visits to medical centers in this country and abroad enabled him to remain abreast of the times. By 1900 he was devoting his entire time to surgery. And what a competent pioneer he was—his reputation became statewide. Many a memorable hour, do we call to mind, listening to his narrations of professional experiences.

In 1902 he was elected a member of the

Council. He served on the Council till 1919—the last 12 years in the capacity of Chairman. In 1920 he served as President, a fitting tribute for all that he gave to our Society. In 1917 he enlisted in the army and was assigned as Chief of the Surgical Service of the Base Hospital at Camp Sherman and continued in that service till discharged in May, 1919. In that service we were privileged in being with him for four never to be forgotten months. That period would also enable one to compose a volume of interesting narrative.

One could go on and on relating incidents in which he was outstanding in medical, community and business life. Words would fail, however, to adequately convey the man, surgeon, leader, and friend that he was.

In the last years his physical condition confined him to his home and bed. He became an inveterate reader and manifested deep appreciation for the books and magazines sent him.

Dodge—as he was called and he was known state-wide as "the" Dodge—has now gone on, but his memory lives on. "From his voiceless lips comes no word; but in the night of death hope sees a star, and listening love can hear the rustle of a wing."

FUNDS

After the annual meeting in September, 1933, Dr. J. D. Bruce aided the State Society in securing a grant of funds from Mr. Tracy McGregor for the work of the Committee on Medical Economics. At the special meeting of the House of Delegates on April 12, 1934, the following resolution was passed:

"RESOLVED, That the House of Delegates approve the acceptance by the Executive Committee of financial support or assistance from any source or sources, provided, however, that such acceptance of funds or assistance shall not entail any change in the program adopted by the House of Delegates."

The Executive Committee again requested Dr. Bruce to aid in obtaining a grant from the same or other sources. At a later meeting of the Executive Committee, Dr. Bruce reported that he was in touch with three possible contributors, among them, the Twentieth Century Fund of New York. It later developed that this Fund was the only one able to make the contribution.

In order to insure that the grant would be made in conformity with the spirit and meaning of the resolution adopted by the Delegates, an exchange of correspondence ensued. Following is the last letter written to the Fund and the reply received:

April 30, 1934.

Mr. Evans Clark, Director,
The Twentieth Century Fund,
11 West 42nd Street,
New York City.

Dear Mr. Clark:

The delay in my answer to your letter was occasioned by the need for discussing the matter of budget and future program with the Executive Committee and the Committee on Medical Economics of the Michigan State Medical Society. At a special meeting held in Lansing on Friday last the enclosed budget and program were discussed in detail.

It was the feeling of the Executive Committee that there must be a clear understanding in fairness both to the Fund and the Society, that the work to be undertaken in Michigan include the following commitments which are in accordance with the action of the House of Delegates.

A. That the program adhere to the provisions of the enclosed resolution of the House of Delegates.

B. That the final detailed plan for mutual health service be presented to the House of Delegates for formal action.

With the above understanding the Executive Committee will gladly accept the kind offer of the Fund. However, the Committee would not have you proceed on any assumption of what the House of Delegates may or may not do in reference to the completed plan. While I felt sure that you understood this perfectly, I was unable to give complete assurance on this point to the Council and the Committee.

With reference to the budget, you will note that it is prepared for the period, May 1 to November 1. This is to provide for the time needed, following the annual meeting of the delegates, for the inauguration of the experiments. In the event that the delegates act adversely, the work of the Economics Committee will probably be brought to a close on the conclusion of the annual meeting of the Society, about September 15.

It is my hope that the Fund will be able to provide for the budget as outlined, with the possible exception of Item 3, for which we have reason to believe that another grant may be available.

Please accept my thanks for your kind consideration.

Sincerely yours,

JAMES D. BRUCE, M.D.

May 14, 1934.

Dr. James D. Bruce,
University of Michigan
Ann Arbor, Michigan.

Dear Dr. Bruce:

I have your letter of April 30 referring to the action of the Executive Committee of the Michigan State Society. While no copy of "Resolution III" was attached to your previous letter the content of this resolution was taken for granted in my letter to you. Likewise, the second commitment mentioned in your letter appears on page 18 of the plan

mailed to me. The Fund's interest in Michigan's program lies not only in the Society's adoption of the general principle of weekly, monthly or annual payments for medical service, but also in the provisions for a constantly improving service.

As stated in my letter, "The Fund will be willing to aid in the establishment of experiments elsewhere, such as provided for in Michigan's program, in order to permit a thorough test." The last paragraph on page 17 of the plan makes specific reference to the need for such a program. It was with this purpose in mind, as well as that of assistance to Michigan, that the suggestion concerning Dr. Sinai was made. I think it is extremely important that the Fund provide consultant service in answer to the many requests that come in and, further, that the consultant should be thoroughly versed in the methods and program that have developed in Michigan.

Referring to your budget for the period from May 1 to November 1, and to your statement that the work may be brought to a close in September, I make the following suggestions:

1. That in order to permit the continuance of activities, the Michigan State Medical Society submit, through you, a semi-monthly statement of expenses to the Twentieth Century Fund, beginning May 15;

2. That this arrangement be continued until approximately June 15, when it is understood that the academic activities of your Director of Research will end and his time, in part, may be made available to other states;

3. That about June 15 the matter of budgetary needs to September 15 be presented to the Fund; and

4. That, if necessary, the matter of budget from September 15 to November 1 be presented to the Fund following the annual meeting of the House of Delegates.

Sincerely yours,

EVANS CLARK, Director
Twentieth Century Fund, Inc.

As a result of the above understanding, the Executive Committee unanimously approved the acceptance of the grant and the Committee on Medical Economics began its assigned tasks on June 8, 1934.

MINUTES OF THE EXECUTIVE COMMITTEE OF THE COUNCIL OF THE MICHIGAN STATE MEDICAL SOCIETY

The Executive Committee of the Council of the Michigan State Medical Society met in Grand Rapids on June 27, 1934. The following members were present:

B. R. Corbus
G. E. Boys
F. A. Baker
Henry Cook
H. A. Luce
Henry Carstens
President LeFevre
President-Elect Smith
F. C. Warnshuis, Secretary

1. Considerable time was spent in the discussion of the program that should be formulated in connection with our legislative interests and the coming session of the Legislature. Upon motion of Carstens-Luce an appropriation of $300 was made for the Legislative Committee and the Chairman of the Council and Councilor C. E. Boys were appointed to confer with the Chairman of the Legislative Committee for the purpose of formulating a budget and for definitely outlining their program of activity.

2. Upon motion of Cook-Carstens the Secretary was directed to allow the traveling expenses and $7.00 a day for five days for the expenses of our Delegates to the American Medical Association meeting in Cleveland.

3. Upon motion of Luce-Boys an appropriation of $500 was made for the expenses of the Joint Committee on Public Health Education.

4. Considerable time was spent in the discussion of the work of the Committee on Economics.

(a) Upon motion of Carstens-Boys the Secretary was directed to reiterate to the Economics Committee that no portion of its report and none of its findings should be made public until the entire report had been submitted to the House of Delegates and the House of Delegates had recorded its action.

(b) The Secretary on motion of Carstens-Cook was directed to communicate to the Chairman of the Committee on Economics that the report of the Committee which is to be submitted to the House of Delegates at its annual meeting in Battle Creek must be in the hands of the Secretary not later than August 10. This date being the deadline.

(c) Upon motion of Carstens-Boys the Secretary was directed to cause the report to be printed as promptly as possible after it is received on August 10 and to submit it with a confidential communication to each member of the House of Delegates and of the Council in order that these men may have an opportunity to digest the report before it comes up for consideration and action at the annual meeting of the House of Delegates in September.

(d) Upon motion of Carstens-Cook the Secretary was instructed to rigidly adhere to the financial policy laid down by the Council in regard to the receipt and disbursement of funds for the expenses of the Committee on Economics. The Secretary was instructed to request itemized details regarding individual expenses and to audit the same and if they conform to the provisions of the budget then issue an individual voucher for the payment of these accounts to the individual to whom they were due.

5. On motion of Boys-Luce the Secretary was directed to extend the invitation of the Society to Doctor W. L. Bierring, President of the American Medical Association to be the guest of the Society at the annual meeting in Battle Creek in September.

6. The Executive Committee spent considerable time and discussion of the policy regarding the dues which are to be charged to members for reinstatement and also of the policy regarding the prorating of dues to members joining during the last nine months of the fiscal year. The matter was laid upon the table and the Secretary instructed to secure legal opinion from Mr. Barbour and to report thereon at the next meeting of the Executive Committee of the Council.

7. Upon motion of Carstens-Luce the Secretary was directed to make certain investigations and to compile data regarding the program of public education and preventive medicine practices in the states of Wisconsin, Minnesota, Illinois and Washington and to report thereon at the September meeting of the Council.

There being no further business the meeting adjourned, subject to the call of the Chairman.

Signed: F. C. WARNSHUIS,
Secretary.

CUTTING HOSPITAL DRUG BILLS

LOUIS LE FEVRE, M.D.

MUSKEGON, MICHIGAN

The delivery room and the operating room are parts of a hospital with which most physicians are thoroughly familiar. We are constantly in touch with the equipment available for our use in these places and the purchase of anything new, such as a portable x-ray machine or a pair of chromium plated forceps, will at once attract our attention and comment.

Few of us are as familiar with the pharmacy. It is often tucked away in a dark corner of the basement and made as unobtrusive as possible, as if we considered it something we would like to do without but can't quite get rid of. Perhaps because of the obscurity to which we have relegated the pharmacy, few of us ever see the drugs we prescribe, and fewer still ever see them administered, yet the practice of medicine is dependent more on the proper use of drugs than on any other one thing, not excepting surgery, the often brilliant results of which could not be obtained without the valuable but inconspicuous use of drugs.

Publications in current medical literature of articles on drugs or their uses are not likely to equal more than 10 per cent by weight of the material distributed by the detail men from the drug houses on their newest pharmaceutical preparations. These booklets, pamphlets and papers are generally well written from a literary viewpoint, although the effort to appear scholarly is often overdone by the too frequent use of Latin names where ordinary one syllable English words would do. I am sorry I cannot be so complimentary about the scientific nature of this material. The essence of science is truth. Too often the literature of the detail men is scientific only in its efforts to distract the physician's mind from any truths that might be unfavorable to the purchase of the pharmaceutical that is being pushed for the present.

The manufacturer of a mouth wash, for instance, extols its virtues in language that could be applied equally as well to normal salt solution. Indeed, it owes whatever virtue it has to the salt it contains. The clever advertising literature which so ably presents the scientific nature of this mouth wash to the medical and dental professions, as well as the public, is carefully designed to steer the reader's mind away from the intrusion of any thought that these desirable therapeutic effects could be obtained by anything as easy to prepare as normal salt solution.

Manufacturers of proprietary drugs should not, however, all be classed alike in this respect. A urinary antiseptic, sold only through the medical profession on prescription, makes no claim to fame other than that its antiseptic action is due to orotropine, and the solution in which it is sold is so designed that much larger than usual doses can be given without producing hematuria or upsetting the stomach. We have the opportunity here to judge if the advantages claimed are worth the higher price asked, and, if true, the higher price is really a cheaper price.

If the new interne, in wandering about the hospital on his first day in an earnest effort to become familiar with the new surroundings, should by chance while looking for something else open one of the doors in the basement and find himself in the pharmacy, he would be likely to become lost in an amazing variety of pills, elixirs, tinctures, ointments and tonics, all labeled with names which give no hint of the active principle within, and all so unfamiliar that he is likely to wonder if the professor of materia medica did not leave out most of the course.

While searching for a pharmacopœia to shed some intellectual light on his strange surroundings, he discovers the drug house catalogues, neatly piled up to a height of about three feet on one of the shelves. Glancing through these, he finds that many of these preparations about him are duplications of each other, although going by widely different names. If the new interne then becomes interested enough to classify some of these medicines roughly according to therapeutic use and price, he will have, in time, a list which in part may be printed as follows:

Sedatives and Hypnotics	
Sodium Ortal	4 cents per capsule
Migraine tablets	3 cents each
Ipral tablets	1 cent each
Allonal tablets	2½ cents each
Sodium amytal	4 cents each
Amytal	2 cents each
Neurosine	5 cents a dose
Nembutal	4 cents each
Anacin tablets	1 cent each
Empirin with Codeine	2 cents each
Antiseptics	
Acriflavine jelly	70 cents for 2½ ounces
Mercurochrome	$50.00 for 500 grams
Hexylresorcinol	$1.00 for 12 ounces
Merthiolate	$1.00 per gallon
Alkalis	
Kalak water	40 cents for 24 ounces
Bisodol	85 cents for 8 ounces
Alcaroid	40 cents per can
Citrocarbonate	85 cents for 8 ounces
Ointments	
Husk's Ointment	$1.20 per pound
Quret Ointment	35 cents small size 50 cents large size
Unguentine	35 cents a tube $1.25 per pound
Laxatives	
Isacen tablets	2 cents each
Caroid and bile tablets	40 cents a box
Pluto water	34 cents a bottle
Crazy water crystals	$1.10 a package
Abilena water	34 cents a bottle

This is only a partial list of the proprietary preparations found on the shelves of one hospital. They had all been prescribed by physicians for their patients in the hospital. They are, on the whole, extremely expensive as compared with the price of the crude drugs.

Notice the duplications among the sedative and analgesic group. Salts of barbituric acid appear with monotonous regularity in combination with amidopyrine to make something that will put the patient to sleep. Neither of these chemicals is expensive, but when united under one name of sufficient obscurity to hide their identity, they become worth their weight in silver and thereby approximately achieve the dream of the alchemists of the middle ages to transform baser elements into precious ones.

The laxatives are also always a favored field in which to exploit the gullible in the profession. Epsom salts in solution become Pluto water, and sodium sulphate, formerly used chiefly by veterinarians, is now ordered into the human intestinal tract by physicians under the name of Crazy Water Crystals, at an increase in price sufficient to assure its appreciation by all those fortunate enough to be able to afford it.

A solution for this problem, that will at the same time reduce the hospital bills, and simplify the prescribing of drugs in the hospital may be arrived at in the following manner.

A list of drugs available in the hospital should be drawn up and posted at all places in the building where drugs may be prescribed. This list should be classified in some way that will make it easy to find a preparation of a drug for the purpose desired. No preparation other than those which the hospital wishes to see in constant use need appear on this

list. An example, in part, of how this list would appear is as follows:

Sedatives, Hypnotics and Analgesics	
Sodium bromide, 5 grains	¼c
Chloral hydrate in solution, 5 grains to the dram	½c.
Cannabis indica (extract), 1/6 grain	⅓c
Tincture hyoscyamus, 30 minums	½c
Acetylsalicylic acid, 5 grains	.01 each
Amidopyrine, 5 grains	.08 each
Barbital, 5 grains	.02 each
Tincture belladonna, 10 minums	½c each
Codeine sulphate, ¼ grain	.02 each
Morphine sulphate, ¼ grain	.06 each
Cocaine hydrochloride, 4% solution	.85 a pint
Laxatives and Cathartics	
Fl. Extract cascara, 1 dram	.05 each
Compound licorice powder, 1 dram	.01 each
Phenolphthalein, 1 grain	½c
Aloin, belladonna and strychnine pills	.01 each
Bile salts, U. S. P.	.01
Epsom salts, 1 ounce	1/5c
Sodium phosphate, 1 ounce	105
Sodium sulphate, ½ ounce	½c
Mineral oil, 1 ounce	.01
Alkaline Substances	
Magnesium oxide, 1 dram	All less than .01
Magnesium carbonate, 45 grains	
Bismuth subcarbonate, 8 grains	
Calcium carbonate, 10 grains	
Sodium bicarbonate, 15 grains	
Diuretics	
Caffeine citrate, 5 grains	1/5c
Theobromine and sodium salicylate, 15 grains	.01
Tincture digitalis, 10 minums	½c
Potassium nitrate, 8 grains	¼c
Theophyllina (theocine), 4 grains	.04
Urinary Antiseptics	
Sandalwood oil, 8 minums	.04
Urotropine, 5 grains	.02
Sodium salicylate, 5 grains	¼c
Salol, 5 grains	½c
Heart Stimulants	
Digalen, 1 tablet	.01
Digifolin, 1 ampoule	.07
Tincture digitalis, 10 minums	.05
Adrenaline, 15 minums	.10
Atropine, 1/150 grain	⅓c
Caffeine sodium benzoate, 7½ grain	.08 ampoule .01 powder
Strychnine sulphate, 1/30 grain	⅓c
Ointments	
Vaseline and vaseline gauze	1.45 per pound
Scarlet red ointment, 5%	1.50 per pound
Picric acid ointment	1.65 per pound
Tannic acid ointment, 10%	1.00 per pound
Boric acid ointment	1.00 per pound
Ointment of rose water	.50 per pound
Belladonna ointment	1.50 per pound
Chrysarobine ointment	1.50 per pound

The above list is necessarily incomplete for want of space. Many of the proprietary medicines listed above are useful, but the question the physician must decide is, are they more useful than the same drugs prescribed by their authorized names? It would seem that familiarity with the United States Pharmacopœia, in which are listed hundreds of drugs and their preparations, would make it unnecesary to resort to expensive medicines, sold under trade names which suggest a therapeutic use, but perfectly hide the name of the drug which is to bring about the numerous desirable effects promised.

In the face of a constant well-organized propaganda from the proprietary drug houses, it is not surprising that the busy physician, when called on to prescribe, finds the most accessible parts of his brain filled up with this expensive materia medica. There is an opportunity here for the hospitals to render a small but real service to themselves and their patients. Let the hospital, through its pharmacy and staff, draw up a list of drugs similar to that printed above, but complete enough to cover the field. Only such drugs and their preparations would be included that deserve the recommendation of the staff, and the price and dose should be mentioned. The drugs should be listed according to their therapeutic uses, so that they can be found quickly. Needless to say, no mention need be made of those proprietary preparations that the hospital finds unnecessarily expensive. Such a list should be posted at each chart desk, and there will serve as reminders to the profession that drugs still exist under their own names, and to many, including myself, such a list will be a real help in selecting the right medicine for the patient.

There will be objections to such a list. Some physicians will feel that they are being told what to prescribe, forgetting that they have been told successfully, in the past, by non-medical detail men. There should be nothing about the list to suggest compulsion. Its whole purpose should be to keep ever before the staff the names of a wide variety of remedies to suit every purpose, from which the physician may choose, feeling that, having done so, he has considered all the suitable drugs available. Those who still prefer expensive proprietary drugs should not be prevented from using them, but they will have to think them up themselves, as their names will not appear on the list.

For the purpose of reducing the chaotic conditions present in prescribing drugs, this paper is written. It is not expected that all physicians will agree with everything said here. The committee realizes that physicians are individualists and that the interests of the patients as well as the progress of the profession will suffer if any hospital should attempt to impose restrictions on the use of drugs. We believe, however, that the barrage of publicity fired at the profession by the drug ghouses will in part be neutralized by such a list as is herein described, giving impartial information about drugs at the chart desk, the place where it is most needed.

POSTGRADUATE COURSE IN TRAUMATIC, EMERGENCY AND MINOR SURGERY

Detroit, 1934

Dr. Dow Allard	Portsmouth, Ohio
Dr. N. C. Atorthy	Detroit, Michigan
Dr. C. H. Bailey	East Liverpool, Ohio
Dr. R. Bailey	St. Clair Shores, Michigan
Dr. Jos. A. Bakst	Detroit, Michigan
Dr. E. J. Byrd	Bearden, Arkansas
Dr. A. L. Chapman	Detroit, Michigan
Dr. L. H. Darling	Lansing, Michigan
Dr. Peter H. Darpin	Detroit, Michigan
Dr. G. H. Davis	Detroit, Michigan
Dr. John V. Failing	Grand Rapids, Michigan
Dr. H. S. Foley	Dearborn, Michigan
Dr. J. M. Gettrost	Columbus, Ohio
Dr. Don V. Hargrave	Eaton Rapids, Michigan
Dr. H. M. Jardine	West Branch, Michigan
Dr. T. J. Kane	Muskegon, Michigan
Dr. Edw. Maire	Grosse Pte. Park, Michigan
Dr. Nur M. Malik	Detroit, Michigan
Dr. W. Frank Maxwell	Toledo, Ohio
Dr. J. A. McLandress	Saginaw, Michigan
Dr. Howard H. McNeill	Pontiac, Michigan
Dr. L. D. McRae	Gagetown, Michigan
Dr. E. N. Mendenhall	Fort Wayne, Indiana
Dr. Carl A. Mitchell	Benton Harbor, Michigan
Dr. John H. Nauman	Martin's Ferry, Ohio
Dr. W. H. Norton	Mount Clemens, Michigan
Dr. H. C. O'Roark	Portsmouth, Ohio
Dr. Russell Palmer	St. James, Michigan
Dr. A. W. Petersohn	Battle Creek, Michigan
Dr. Donald Pollock	Yale, Michigan
Dr. H. J. Prall	Lansing, Michigan
Dr. O. W. Rapp	Fredericktown, Ohio
Dr. Carl S. Ratigan	Dearborn, Michigan
Dr. R. B. Robins	Camden, Arkansas
Dr. Fred L. Robinson	Dearborn, Michigan
Dr. Fenton M. Sanger	Oklahoma City, Okla.
Dr. Myron E. Speck	Cleveland, Ohio
Dr. M. Henry Speck	Youngstown, Ohio

Dr. Fredk. A. Sturm.....St. Clair Shores, Michigan
Dr. Thomas Wilensky.....Eaton Rapids, Michigan
Dr. Harold L. Williams.....Norwalk, Ohio

PRACTITIONERS' COURSE
Detroit, 1934

Dr. N. C. Atorthy.....Detroit, Michigan
Dr. R. Bailey.....St. Clair Shores, Michigan
Dr. J. C. S. Battley.....Port Huron, Michigan
Dr. Walter L. Baumann.....Detroit, Michigan
Dr. L. C. Blake.....Mt. Vernon, Ohio
Dr. W. R. Blume.....Minden, Nebraska
Dr. O. H. Bruegel.....East Lansing, Michigan
Dr. E. J. Byrd.....Bearden, Arkansas
Dr. A. L. Chapman.....Detroit, Michigan
Dr. Peter H. Darpin.....Detroit, Michigan
Dr. G. H. Davis.....Detroit, Michigan
Dr. K. W. Dick.....Carsonville, Michigan
Dr. John F. Failing.....Grand Rapids, Michigan
Dr. H. S. Foley.....Dearborn, Michigan
Dr. Neil A. Gates.....Ann Arbor, Michigan
Dr. J. M. Gettrost.....Columbus, Ohio
Dr. G. I. Goodrich.....Dover, Ohio
Dr. James M. Harsha.....Washington C. H., Ohio
Dr. J. I. Humphries.....Windsor, Ontario
Dr. John Kremer.....Detroit, Michigan
Dr. Edw. D. Maire.....Grosse Pte. Park, Michigan
Dr. Nur M. Malik.....Detroit, Michigan
Dr. E. G. McConnell.....Lansing, Michigan
Dr. Howard H. McNeill.....Pontiac, Michigan
Dr. L. D. McRae.....Gagetown, Michigan
Dr. Jeannette C. Miller.....Massillon, Ohio
Dr. H. E. Morgan.....Fredonia, Kansas
Dr. Russell Palmer.....St. James, Michigan
Dr. P. W. Patterson.....Grand Rapids, Michigan
Dr. A. W. Petersohn.....Battle Creek, Michigan
Dr. Donald Pollock.....Yale, Michigan
Dr. E. L. Robb.....Detroit, Michigan
Dr. Colin G. Robertson.....Sandusky, Michigan
Dr. Fred L. Robinson.....Dearborn, Michigan
Dr. E. C. Rumer.....Flint, Michigan
Dr. Burrell Russell.....New Philadelphia, Ohio
Dr. Fenton M. Sanger.....Oklahoma City, Okla.
Dr. Chas. Sawers.....Watford, Ontario
Dr. Arthur Shagrin.....Cleveland, Ohio
Dr. U. G. Spohn.....Fairgrove, Michigan
Dr. Frederick A. Sturm..St. Clair Shores, Michigan
Dr. J. P. Thomas.....Detroit, Michigan
Dr. T. P. Vanderzahn.....Lansing, Michigan
Dr. J. D. Vyn.....Grand Rapids, Michigan
Dr. W. J. Wall.....Davison, Michigan
Dr. H. L. Williams.....Norwalk, Ohio
Dr. Mildred C. Williams.....Detroit, Michigan

COUNTY SOCIETIES

O.M.C.O.R.O. COUNTY

The regular meeting of the O.M.C.O.R.O. County Medical Society was held at Kenyons' Resort on Sage Lake near West Branch, May 23, at 6 p. m., at which time the Bay County Medical Society members attended as invited guests.

The afternoon was spent in fishing and golf and following the banquet at 6 p. m. a very fine program was presented under the Michigan State Medical Society Post-graduate Conference in coöperation with the Department of Post-graduate Medicine, University of Michigan. The meeting was in charge of the 10th District Councilor, Dr. Paul R. Urmston. Dr. W. H. Marshall gave a very fine instructive talk on Hypertension; also Dr. L. J. Hirschman gave a very fine instructive and illustrated talk on the Common Rectal Conditions and Treatment. And, last but not least, Dr. Fred Cole gave a very interesting talk on Urethral Infections and presented movies of transurethral resection of the Prostate Gland revealing the speaker as the operator. Following the talks, there were general discussions.

There were about forty members in attendance and the program was thoroughly enjoyed by all and it was hoped we would have more such meetings.

C. G. CLIPPERT, M.D.,
Secretary, O.M.C.O.R.O.

GRAND TRAVERSE-LEELANAU COUNTY

As part of the program of the Committee on Preventive Medicine of the Michigan State Medical Society, the Grand Traverse-Leelanau County Medical Society met in regular session at the Park Place Hotel, Traverse City, on May 8, 1934.

Thirty-two physicians from the surrounding region sat down to a steak dinner, following which President Hastings introduced members of the team which were sent to us by courtesy of the W. K. Kellogg Foundation.

Dr. John E. Gordon, Detroit, led the program, covering the scientific side of the problem, by giving a very fine talk on "Differential Diagnosis in the Acute Communicable Disease," covering in a very thorough manner Diphtheria, Tonsillitis, Vincent's Angina, Scarlet Fever, Septic Sore Throat, Abscess, and Agranulocytosis. He particularly emphasized examination behind the soft palate and palpation of the posterior pharynx as diagnostic measures.

Dr. L. O. Geib, Detroit, chairman of the Preventive Medicine Committee of the Michigan State Medical Society, spoke of the proposed program of the Society in regard to public health and stated that this meeting was part of that program. He particularly emphasized that both the public and the medical man must be made more conversant with public health problems.

Dr. Henry F. Vaughan, Detroit, presented an exhaustive and thorough review of past and present methods of control of public health, especially in relation to contagious diseases. He then presented, by lantern slide illustrations, a plan of contagious disease control, as conducted by the City of Detroit, showing the greater financial return to the physician resulting from its operation, and also the greater results obtained from a public health standpoint. He stated the operation of this plan meant a material reduction in the cost of illness to both the public and the county or city agencies. He also spoke of methods whereby this plan could be applied to our community. He stated that one of the objects of the Michigan State Medical Society in forming this committee was to have the physician practice preventive as well as curative medicine.

Dr. G. M. Byington, Battle Creek, spoke of the participation of the W. K. Kellogg Foundation in this preventive medicine campaign and related how the plan works when applied to rural communities.

Dr. Roy Holmes, Muskegon, and Dr. Keyport, Grayling, members of the Preventive Medicine Committee, spoke briefly on various phases of this work.

At the conclusion of the program, much general discussion took place, particularly as regards the local conditions in Grand Traverse and Leelanau Counties and to methods which could be applied whereby some modification of this plan could be made operable here. Members of the team gave much valuable advice in this discussion.

The regular monthly meeting of the Grand Traverse-Leelanau County Medical Society was held

July 10, 1934, at the J. D. Munson Hospital, fifteen members being present.

Dr. E. B. Minor, as delegate to the special session of the House of Delegates, reported relative to the Health Insurance Plan of the Michigan State Medical Society. Considerable discussion took place with no action at the present time.

After some discussion, our local Preventive Medicine Committee, with Dr. B. B. Bushong of Kalkaska as chairman, was instructed to formulate a plan applicable to our community and report at the next regular meeting.

Dr. Norm Kretchmer, Ann Arbor, cited four recent cases of intra-abdominal hemorrhage due to rupture of a corpus luteum cyst. He stated that follicular hemorrhage could be considered an important clinical entity and if properly diagnosed could be treated conservatively, the chief diagnostic point being that the hemorrhage occurs from fourteen to sixteen days post-menstrual.

Dr. R. E. Hastings reported that he is leaving us, being offered a position in the Department of Surgery of the University Hospital.

E. F. SLADEK, *Secretary.*

MECOSTA COUNTY

The regular meeting of the Mecosta County Medical Society was held in the Western Hotel, Big Rapids, Mich., Tuesday, July 10, 1934, at 6:30 o'clock p. m., the guests of Drs. Grieve and East.

Present: Dr. Bunce, Grieve, East, Campbell, Kelsey, Chess, Franklin, Kilmer, Treynor, MacIntyre, Yeo.

Dentists: Pryor, Zetterstedt, Rogers, Hayes.

Guest: Dr. A. R. Hufford of Grand Rapids, Michigan.

The minutes of the last regular meeting were read and approved as read.

Report of Resolutions Committee was adopted as read and spread upon the minutes of this meeting, and a copy ordered furnished Mrs. W. T. Dodge.

"WHEREAS, it has pleased Almighty God to remove from our midst one of our beloved members in the person of Dr. William T. Dodge,

BE IT RESOLVED, that in the passing of our associate of many years the Society in particular and the community at large has lost a highly respected citizen who always stood ready to aid his fellow man and the members of the profession which he so dearly loved. In the capacity of Surgeon to Mercy Hospital, Big Rapids, Michigan, his services were of inestimable value; and the experience acquired enables him to be counted with the outstanding surgeons of Michigan. Dr. Dodge served as Surgeon of the 2nd Infantry, Michigan National Guards, and subsequently became Chief Surgeon, a position which he held for several years. During the World War he served as Major and Surgeon at Camp Sherman, Chillicothe, Ohio, until the close of the war. He filled many professional and civil positions during his residence in this city, with honor, and his integrity and ability was unquestioned.

BE IT FURTHER RESOLVED that this resolution be spread upon the minutes of this Society and a copy thereof be furnished the bereaved widow, Mrs. Anna Dodge, Reed City, Michigan. May the memory of our association with our departed brother always be an inspiration to us to emulate his example. "We shall meet, but we will miss him. There will be one vacant chair."

"Vale, Doctor Dodge."

JOHN L. BURKART, M.D.
GORDON H. YEO, M.D.
ARTHUR ZETTERSTEDT, D.D.S.

The meeting was then turned over to the Program Committee. Dr. Chess, chairman, introduced our guest, Dr. A. R. Hufford of Grand Rapids, Mich., who delivered a very instructive and interesting paper on "Gastric and Other Ulcers of the Digestive Tract." X-ray films materially increased the interest.

Discussion on the subject by various members of the Society and questions propounded were all very clearly and freely answered. Dr. Hufford in his remarks suggested that men were much more frequently afflicted than women. This opinion was based upon his observation.

The regular order of business was resumed.

A rising vote of thanks was tendered the speaker of the evening and our hosts, Drs. Grieve and East.

There being no further business, the meeting was adjourned.

JAMES B. CAMPBELL, *President.*
JOHN L. BURKART, *Secretary-Treasurer.*

SHIAWASSEE COUNTY

Dr. E. H. Bailey, of Corunna, was honored by the society at its meeting on June 21, it being the occasion of the fiftieth anniversary of his graduation from the Detroit College of Medicine. Dr. W. F. Weinkauf of Corunna was toastmaster and Dr. A. M. Hume was the principal speaker.

Dr. W. E. Ward read the poem by Oliver Wendell Holmes "The Morning Visit," and Dr. J. J. Haviland contributed "The Boys," also by Holmes.

Dr. C. A. Crane, of Corunna, presented Dr. Bailey with an electric clock, and music was furnished by Lynch & Son.

Dr. Bailey has practiced nearly all of the fifty years in Corunna, and he entertained the gathering with reminiscences of the early days when there were no good roads and the practice of medicine was not what it is today.

W. E. WARD, Secretary-Treasurer.

WOMAN'S AUXILIARY, MICHIGAN STATE MEDICAL SOCIETY

MRS. ELMER L. WHITNEY, President
18224 Wildemere Ave., Detroit
MRS. C. L. STRAITH, Secretary-Treasurer
19305 Berkley Road, Detroit

Dear Auxiliary Members:

Greetings from your Vice President!

I am happy to send greetings to the Auxiliary members of the Michigan State Medical Society. We are like one big family, all doctors' wives with cares great and small. To be as a family we must know each other better. The State Convention in September is an ideal place to meet and see one another. I hope you are planning to attend.

Battle Creek is honored to be hostess to the State Convention September 12-13, 1934. We are planning so many things and hope many Auxiliary members will come. Battle Creek is known as the "Health City of Michigan" and everyone should be interested in our beautiful Sanitarium, the Kellogg and Postum Plants, the Kellogg Foundation that sponsors the Ann J. Kellogg School, the only one of its kind in the United States. These interesting places alone should bring many here, but we have also planned teas and luncheons. The entire program will be announced later.

Battle Creek joins me in sending greetings, and let's make the slogan, "We will see you in Battle Creek in the fall." I'll be looking for every doctor's wife in Michigan.

Sincerely,

(MRS. W. R.) LOUISE CHYNOWETH.

September 11-12-13. The sanitarium will be our headquarters. Registration all three days. Special rates will be available to guests staying there.

Wednesday, September 12. 12:30 Noon. Luncheon

at Kellogg Hotel, for Board members and county presidents meeting following.

3:30 p. m. Tea, place to be announced later.

7:00 p. m. Dinner and bridge at Battle Creek Country Club.

Thursday, September 13. 10 a. m. General meeting and election of officers of medical auxiliary in mezzanine parlors at Sanitarium, followed by 12:30 luncheon in main dining room. Mrs. G. Henry Mundt from Chicago will be the guest speaker.

THE CLEVELAND SESSION OF THE WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

Convention Notes of the 12th Annual Meeting June 11-16, 1934

The Woman's Auxiliary to the A. M. A., assisted by a group of Cleveland doctors' wives, planned the program for all women visitors and extended a hearty greeting to all members of the Auxiliary, guests and women members of the A. M. A. All meetings and entertainments were open to everyone and a special invitation was extended to those not conversant with the aims and work of the Auxiliary.

The Auxiliary maintained its headquarters at the Carter Hotel.

On Monday, June 11, the National executive board met for business and luncheon. A most delightful dinner and reception honoring Past Presidents, National Board, delegates and wives of officers and delegates of the A. M. A. was held in the evening.

Preceding the opening of the general business session, at 8:15 Tuesday morning, a "Southern Breakfast" was served in the French Room of the Carter Hotel, with Mrs. Southgate Leigh, of Norfolk, Va.; Mrs. James Blake, President of the Auxiliary to the A. M. A., and Mrs. Robert Tomlinson, President-elect, acting as hostesses. Several short talks were given by members of the Southern Medical Association and officers of the Southern Medical Auxiliary.

At 10 a. m. the first general meeting was called to order by Mrs. James Blake, president. After the invocation by Rev. Mr. Lohr, pastor of the Old Stone Church, Ohio not having an organized Auxiliary, Mrs. Clyde L. Cummer, wife of the president of the Ohio State Medical Association, welcomed the Auxiliary to Cleveland and extended greetings to all women attending the convention. The response was given by our own Mrs. Elmer L. Whitney, of Detroit.

A memorial service followed, conducted by Mrs. Frank Haggard, of San Antonio, Texas, who requested each State President to place the names of deceased members of their Auxiliary in the National Obituary Register. (Our State President entered the names of three Michigan members.) Mrs. C. P. Corn, of Greenville, South Carolina, sang "There is No Death."

After the report of the committee on credentials and registration and roll call of State Auxiliaries, the President's report was read by the president, Mrs. James Blake. She suggested: "Undertake less, accomplish more." "Understand what the activity is and then what you as an Auxiliary are trying to do with it."

The report of the President-elect followed listing her year's activities and telling of work to be done during the coming year in New York and New England States not yet organized.

Reports of other officers and standing committee chairmen were given followed by the recommendations which had been presented to the Board.

The beautiful Lake Shore Hotel, situated on a high bluff overlooking Lake Erie was the setting for the luncheon, style show and bridge, which took place Tuesday afternoon. Tables for bridge were arranged in the ballroom and on the terrace overlooking the lake.

At 8 o'clock Tuesday evening the opening general meeting of the A. M. A. was held in the Music Hall of the Cleveland Public Auditorium. Addresses of welcome were given by the Hon. Harry L. Davis, Mayor of Cleveland, Dr. A. A. Jenkins, President of the Academy of Medicine of Cleveland, and Dr. C. L. Cummer, President of the Ohio State Medical Association, preceding the introduction and installation of President-Elect Walter L. Bierring, of Des Moines, Iowa.

The general meeting on Wednesday, June 13, was called at 9 a. m. with Mrs. Blake presiding. The following officers were elected:

President, Mrs. Robt. Tomlinson, Wilmington, Del.
President-elect, Mrs. Rogers N. Herbert, Nashville, Tenn.
First Vice President, Mrs. Rollo K. Packard, Chicago, Ill.
Second Vice President, Mrs. Otis Lamson, Seattle, Wash.
Third Vice President, Mrs. J. Bonar White, Atlanta, Ga.
Fourth Vice President, Mrs. William Lett Harris, Norfolk, Va.
Secretary, Mrs. Elmer L. Whitney, Detroit, Mich.
Treasurer, Mrs. Eben J. Carey, Milwaukee, Wis.

Michigan is again honored by having a member elected to the National Board. Mrs. Whitney, of Detroit, President of the Auxiliary to the Michigan State Medical Association, was elected Secretary of the National. This is not the first time that Mrs. Whitney has served in a National capacity. In 1930-31 she was chairman of Legislation.

Registration to 11 o'clock Wednesday totaled 795.

A very interesting and instructive address, "The Technic of Putting a Bill through a State Legislature," was given by Dr. Junius B. Harris, of California, which was followed by an address by Dr. W. W. Bauer, of Chicago, Director of the Bureau of Health and Public Instruction of the A. M. A. Dr. Bauer told of sending out questionnaires (to 268 Auxiliaries and receiving only 185 replies) as to County Auxiliary projects. "Getting information from local officers is a real, life-sized job," said Dr. Bauer. Let's help by filling out and returning questionnaires sent out by the A. M. A. and show what Michigan is doing. A résumé of what a few Auxiliaries are doing:

1. Prepares obstetrical packs for the Junior League Closet.
2. Has a Student Loan Fund.
3. Sews for hospitals.
4. Conducts an educational campaign on maternal care.
5. Sews for hospitals and needy children at a camp.
6. Is sponsoring and carrying on a nutrition class.
7. Placed *Hygeia* in schools.
8. Sponsors Child Health Week, having programs in all schools.
9. Sponsors school for handicapped children.
10. Has a Medical Scholarship.
11. Places educational materials at County Fairs.
12. A Southern Auxiliary sponsors a weed eradication campaign.

Dr. Bauer suggested that the Auxiliaries supervise the selection of good health literature by the local libraries.

The colorful Rainbow Room, of the Carter Hotel, was the scene of the Woman's Auxiliary luncheon Wednesday noon. Among the "after dinner" speakers were Mrs. Tomlinson, the newly elected Auxiliary president, and Dr. Bierring, the A. M. A. president.

On Wednesday afternoon the State reports were given. Highlights from a few State reports:

ALABAMA—"Jefferson County is sponsoring a health contest in the elementary schools. A silver cup is awarded on 'Child Health Day' to the school showing the greatest improvement among its pupils in all phases of health."

ARKANSAS—"Our A. M. A. Study envelopes are used throughout the state by the P. T. A. groups, Federated Clubs, Red Cross workers, and paid and unpaid workers in the White House Conference group, and bound in the libraries."

CALIFORNIA—"The most important accomplishment of the year has been the organization of a group representing the Sacramento Medical Society, Department of Adult Education in the Sacramento Schools—the Sacramento Health Department—the P. T. A.—American Legion, State Board of Education—to work out a program of Adult Health Education."

COLORADO—"Christmas boxes and stockings filled for distribution in hospital wards. Surgical dressings for hospitals."

DISTRICT OF COLUMBIA—Some typical programs of this progressive group: 1. Review of the History of the National Auxiliary, as well as our own; 2. The new Food and Drug Act Bill; 3. Musical by our own medical talent.

FLORIDA—"Other philanthropic work done by county groups has been: Milk funds for underprivileged children; Christmas stockings for local trees; tubercular clinic; collecting samples from doctors' offices for colored charity."

ILLINOIS—"With a full realization of why we as an auxiliary are able to report the largest number of counties organized with the largest membership, with a board of directors having so recently completed their duties to the satisfaction of their president, I wish to pay tribute to the powers that have made this possible and that make even our existence worth while.—*Our Doctors and Husbands.*"

IOWA—"Our outstanding work for the year has been our printed program suggestions and our health essay contest which we sponsored. . . . If we have in a small way helped the medical profession to gain a surer footing with the State Department of Public Instruction then our efforts have not been in vain."

KANSAS—"We consider our biggest piece of educational work, the work of the Legislative Department. Our State Chairman investigated the Pure Food and Drug Act and has written a fine article on this subject, which was given at the mid-winter State Board meeting, and at many civic club meetings.—The Men's Advisory Board of the state asked us to investigate legislation and to make a map of our state, which would show the locations of the doctors and auxiliary members in respect to their representatives and senators. The auxiliary's duty was to bring out the feeling of the state representatives and senators in respect to the medical profession, on such subjects as the Basic Science Law, their religion, their family physicians and their specialists. Much can be gained if we are informed as to these qualifications of the state representatives and senators. We know at once whether they are in sympathy with Christian Scientists and osteopaths or with the medical profession."

NORTH CAROLINA—"The upkeep of a bed at our State Sanatorium is our pet philanthropic project."

OREGON—"Since the organization of the Woman's Auxiliary to the Oregon State Medical Society a Basic Science Law was successfully passed in the 1933 Legislature. This act has long been fought for by the State Medical Society and defeated several times, but undoubtedly the assistance of the auxiliary finally brought success. While celebrating this great event for scientific medicine in Oregon, we were suddenly faced with the fact that a group of cultists, with

the lowest standard of education known, had attacked our Basic Science Law with a petition to have it repealed at the general election in November. This would not be so bad if it were a simple repeal of the Basic Science Law but their petition embodies in itself an amendment to the Constitution of Oregon whereby all medical legislation and health laws heretofore existing are repealed and the practice of the healing art is thrown wide open to one and all. Therefore, you will see that our Woman's Auxiliary has before it this summer and fall the greatest fight and noblest work we have yet undertaken."

PENNSYLVANIA—"A few of the larger auxiliaries have Junior members—they have been active in meeting and convincing the wives of the younger doctors that the auxiliary is a worthwhile group and it is their duty to join."

TEXAS—"Our main objective has been child welfare—giving charity only where charity is needed."

UTAH—"We are trying to sell our idea as a necessity for the doctors to stick together and hold up scientific work in contradistinction to quackery."

WISCONSIN—"Six County Auxiliaries have the use of radio stations for health programs. A fifteen minute radio talk on some health subject is given each week by the Executive Secretary of the State Auxiliary."

It was evident from the fine reports from the well-organized states that definite programs were under way.

At 8:15 p. m. Wednesday, the Ohio State Medical Association and the Academy of Medicine of Cleveland were hosts to the women guests and A. M. A. members at a Musicale and informal reception at the Allen Memorial Medical Library. After the program refreshments were served in the supper room. Guests were cordially invited to inspect the beautiful building and the collections of rare books and interesting museum articles.

The final business session, at 11 a. m. Thursday, followed conference meetings on *Hygeia* and Public Relations, and a post-convention Board meeting with Mrs. Robert Tomlinson presiding. Committee appointments were announced and the presentation of plans for program of work for 1934-35 was given by Mrs. Tomlinson.

The social program was climaxed with a luncheon at the beautiful Country Club on Lander Road, a Style Show in the Clubhouse and around the swimming pool, below the terrace, and on the return trip the guests enjoyed a garden party at Glenallen, estate of Mr. and Mrs. Francis Fleury Prentiss.

That evening the annual "Bring-Your-Husband" dinner was held at the Carter Hotel. This dinner, which was sponsored by the Woman's Auxiliary to the A. M. A. and the Women's Entertainment Committee of the Academy of Medicine, occurred prior to the President's reception and ball, which was held in one of the most delightful of halls (Hotel Cleveland), and the music and color of the occasion were brilliant.

The 13th Annual Meeting will be held in June, 1935, in Atlantic City:

"Where the long surges heave and break foaming along the glittering shore,
And laughing maidens often take a header midst the breakers' roar."

Study Material for County Groups:

A. M. A. Study Envelopes available at A. M. A. office, Chicago.

"The First Twelve Years." Write for copies—Mrs. James Blake, Hopkins, Minn.

MRS. LLOYD C. HARVIE
Chairman of Press and Publicity
Woman's Auxiliary to the
Michigan State Medical Society.

PHARMACOLOGIC ACTION OF BARBITURATES: THEIR USE IN NEURO-PSYCHIATRIC CONDITIONS

Carl Phillip Wagner, Hartford, Conn., discusses the various effects and uses of the barbiturates and states that, though usually employed for their sedative action, the barbiturates influence almost every system of the body, and their various side actions should be considered in relation to the general condition of the patient. The longer acting drugs are eliminated slowly and the cumulative effect of long-continued usage may lead to a delirious reaction or to other toxic symptoms. The psychologic reactions, which are readily induced by the shorter acting drugs, usually help in gaining coöperation from the patient and may aid in interrupting the course of a psychosis and hasten recovery. If the drug is given over a long period, the histologic changes produced by the administration of large doses may lead to permanent impairment of function. The author treated thirty-seven neuropsychiatric patients by the administration of small doses of sodium amytal Almost without exception he obtained better coöperation from negativistic patients for a period of from several minutes to several hours after the administration of the drug. During the time the patient was under the influence of the drug, psychotherapy in the form of reassurance and suggestion was employed. Seventeen of these patients showed improvement from the time the drug was first administered. Fourteen continued to improve; five of these left the hospital before they had recovered completely. In three the psychosis again became stationary, but at a higher level than before the treatment was started. Twenty patients again regressed to their former level following the initial period of coöperation, and the treatment was discontinued.—*Journal A. M. A.*

PROSTATIC PROBLEM: REVIEW BASED ON DEVELOPMENTS OF THE PAST THREE YEARS

Oswald Swinney Lowsley, New York, believes that vesical neck resection has a definite place in the armamentarium of the profession for dealing with certain types of enlargements at the vesical orifice. In fact, the new instruments recently developed have materially widened the scope of the Young punch. When successful, this procedure is economical for the patient and gratifying to his physician. It is unwise to attempt this procedure on massive adenomatous prostates. It is particularly illogical and improper to remove partially a prostate filled with pus which is being absorbed because of the fact that the tubules are sealed off, and it becomes a serious focus of infection. On the other hand, it is ideal for patients suffering from carcinoma of the prostate, small projections from the floor of the vesical orifice and fibrous bars. This operation is far from being an office procedure; the avalanche of statistics seems to indicate that many patients are being operated on who do not need it. It is just as important to safeguard a case suitable for vesical neck resection as any other prostatic case. All the usual preoperative tests and maneuvers for improving the patient's general physical condition should be performed. Patients on whom vesical neck resection has been performed are subject to various complications (incontinence, hemorrhage, pelvic cellulitis, peritonitis, epididymitis and recurrence). The mortality rate in the author's series of eighty-nine cases was 10.11 per cent, which is approximately the same as that of his suprapubic prostatectomies. The lowest mortality rate, 4.8 per cent, occurred in his series of 535 perineal prostatectomies for benign adenomas. —*Journal A. M. A.*

ACQUIRED SENSITIZATION TO SODIUM ISOAMYLETHYLBARBITURATE (SODIUM AMYTAL), AS EVIDENCED BY CUTANEOUS ERUPTIONS

ALFRED M. LANGENBACH, St. Louis, reports four cases in which a sensitivity to sodium isoamylethylbarbiturate developed as evidenced by skin eruptions. These eruptions were distributed chiefly on the face, neck, arms, hands and mucous membranes of the lips and mouth. None of the cases cited showed any sensitivity to the drug when it was first administered. The sensitivity developed during a period of from eight to fourteen months after the drug had been taken and then discontinued. The primary use of the drug ranged from nine months to two years. The average 3 grain (0.2 Gm.) dose was never exceeded in three cases; 12 grains (0.8 Gm.) was used in one case during a period of eight hours. This sensitivity differs from that previously noted in that it does not extend to other barbiturates.—*Journal A. M. A.* (April 28, 1934).

Battle Creek—The Place of Our 1934 Meeting

BATTLE CREEK, MICHIGAN

Tradition has it that on the banks of the Kalamazoo River, near the entrance of a creek, a fight took place a hundred years ago between a couple surveyors and a couple Indians. Who won the argument in this disagreement history does not say, but the result is that on this spot a village began to grow, which later was named Battle Creek, and today Battle Creek has grown into the best known city of its size in the world. This much is freely admitted.

Located in southern Michigan about midway between Detroit and Chicago, this city of diversified interests lies in the valley of its rivers, and is surrounded by its manufacturing districts and its outlying farming regions. Ample in area, it knows no crowding or congestion.

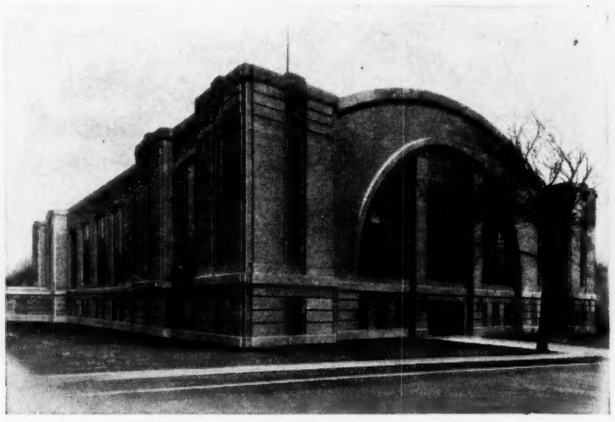
The fame that is Battle Creek's is notable by reason of the fact that its interests are diversified. While in every country in the world its name is synonymous with health, contrary to popular belief it has many notable achievements to its credit sufficient to make its name world famous.

While Minneapolis has its flour, Detroit its automobiles, Grand Rapids its furniture, and Pittsburgh its steel, Battle Creek besides its health fame has its breakfast foods, its printing presses, its threshing machinery, its gas stoves and many another leading industry in its line.

These different manufacturing concerns with a host of smaller ones are of a stable nature, and, except for seasonal fluctuations, operate on as sound a footing as can be found anywhere in the country.

Battle Creek is at the crossroads of two great railway systems, the New York Central and the Grand Trunk Western Lines. The Grand Trunk has its divisional headquarters in Battle Creek, and in addition operates here one of the largest car and locomotive shops in the country. The rail service for both passenger and freight trains in and out of Battle Creek makes a showing not witnessed in many cities much larger. Quick and easy transportation is also afforded by several lines of passenger busses, while Michigan's splendid system of paved roads makes travel to Battle Creek quick and delightful.

With a population of 50,000—90 per cent of whom are American born—75 per cent own their own homes. Its shaded streets and well kept lawns are especially noticeable to the visitor, and it covers an area of some twelve square miles. Within its limits are one hundred and seventy-five miles of streets and boulevards, forty-five miles of which are paved; a modern water supply with two independent pumping systems, and with the usual sewers, gas mains, electric lights and power, and a modern automatic telephone system.



UNION BUILDING. CIVIC SPORTS.

PARKS

Its sixteen parks are of unusual beauty, covering five hundred ninety-six acres of area including public playgrounds for baseball, tennis, football and other outdoor sports. Irving park is noted for its rock gardens, its artistic bridges and scenic vistas and is full of lovely surprises.

Battle Creek's hardy pioneers, who dared the dangers and withstood the hardships of a new country, laid the foundation for a city where religion, patriotism and education should be made the keystone in the arch of its later triumphs, and this was but natural to its New England forebears.

SCHOOLS

The public schools of Battle Creek are outstanding and the buildings and equip-

SILHOUETTE SKYLINE AND ORIGINAL SETTLEMENT

ment of its educational system are far in advance of most cities of its size. One of its newer units, the Ann J. Kellogg school, is the first school in America to achieve the standards set by President Hoover in his plan to give every child a chance to be healthy as well as to obtain an education. Built to house children which normally should come to a grade school, it is departmentized to include children that are crippled, the hard of hearing, the impaired sight, the low grade mentally, the gifted child, and the problem child. Its fame as a unique school is already gone out and it is being watched by educators from all over the world.

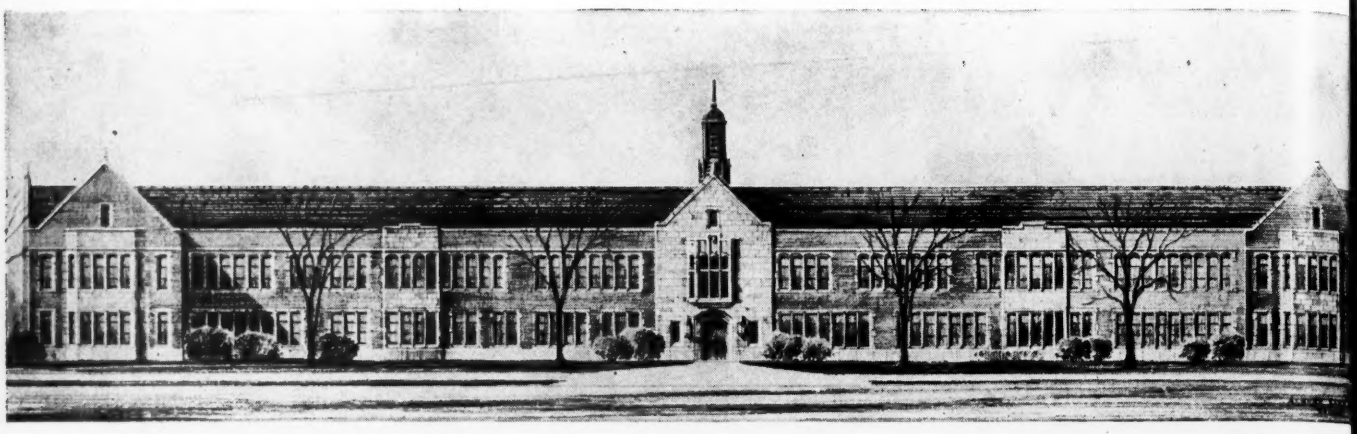
BATTLE CREEK COLLEGE

As an institution of higher learning, with an enrollment of 700 students, this college includes the liberal arts, domestic science, music, physical education, and nurses' training, and has the distinction of being the only institution of its kind where biological living is made the basis of every branch of learning. Bachelor of arts and bachelor of science degrees are conferred.

CHURCHES

Several new church edifices, of more than ordinary architectural excellence, as well as pretentious service requirements, give homes to a large range of religious denominations.

In recent years two skyscraper bank buildings have changed the view of the city to that of a metropolitan center. The tall stately towers of these buildings rising over twenty stories, together with the City National Bank building, furnish housing for bank and trust companies to carry on the



Ann J. Kellogg School for Underprivileged and Special Children

varied financial activities of a busy community.

W. K. Kellogg Auditorium

LAKES

Battle Creek is in close proximity to some eighty-five lakes. Four of these are within ten minutes drive, while Gull lake fifteen miles to the northwest is one of the best known resort waters in southern Michigan. Its shore line is noted for its many gorgeous estates with their beauteous landscapes, while its waters afford water sports and boating to a large concourse of enthusiasts.

AIR PORT

At the southwestern edge of the city of Battle Creek, is located the Kellogg airport with one of the finest of landing fields and affording service for air mail and passenger travel.

BOY SCOUTS

In a club house overlooking the beautiful Irving Park, the Boy Scout Council is housed in what is said to be the finest boys club in America representing an investment of $350,000. Boy Scouts numbering 2,270 are affiliated with this Council, which has given Battle Creek the Gore cup prize for several years back.

CONVENTIONS

Because of its geographical position and also its exceptional transportation facilities Battle Creek is fast becoming the Convention City of Michigan. The recent completion of the Kellogg Auditorium, a gift to the city, has made it possible for large conventions to be housed amid ideal surroundings. Its central location and close proximity to hotels and the business district leaves nothing to be desired from the standpoint of convenience and convention excellence.

THE CALHOUN COUNTY MEDICAL SOCIETY

The Calhoun County Medical Society was first organized in Marshall on November 11, 1839. A Constitution and By-laws was adopted and officers elected: Luther W. Hart, Marshall, President; D. B. Crane, Albion, Vice President; J. H. Montgomery, Marshall, Secretary; Wm. Thompson, Marshall, Treasurer; Censors: Drs. Crane, Montgomery, Bevitt, Sibley, and Greene. The following were charter members in order of their arrival and settlement in Calhoun County: A. L. Hays, Marshall, 1831; Luther B. Hart, Marshall, 1832; John P. Greene and Joseph Sibley, Marshall, 1834; J. H. Montgomery, Marshall, 1836; D. B. Crane, Albion; Daniel Hudson, Edwin D.

Bevitt, Wm. Thompson, and L. J. Aylesworth, Marshall; Rob't W. Porter, Marengo; Henry Porter, Tekonsha; Vernon Parks, D. Nims, and E. Allen, Homer; Albert W. Lathrop, Marshall; Frederick W. Wheelock, Albion; and T. C. Hurd, Burlington. There were no charter members for Battle Creek, which, at that time, was a mere hamlet. This was a flourishing active society for many years.

DR. WILFRED HAUGHEY
Secretary Calhoun County Medical Society

DR. A. E. MCGREGOR
President Calhoun County Medical Society

In 1876 the Society was reorganized at Albion on the 4th of December. The old book of minutes is a work of precision and clearness of penmanship:

> On the above date a meeting was called to order by Dr. Stoddard, who read a copy of the circular calling the meeting. Dr. J. H. Montgomery of Marshall was elected temporary chairman, and Dr. L. A. Foot of Battle Creek was Secretary pro tem. Marshall was represented by Drs. J. H. Montgomery and Henry S. Joy. The Battle Creek doctors were: Edward Cox, S. S. French, M. A. Garcia, and L. A. Foote; Homer was represented by Dr. O. S. Phelps and Dr. E. A. Collins; Tekonsha by Dr. O. C. Lyon, and Albion by Dr. J. P. Stoddard.
>
> A committee of three was appointed to work out a plan of permanent organization, who should report a Constitution and By-laws, and also recommend a place for the next meeting. Chairman appointed Drs. French, Stoddard and Phelps. A recess was taken till 4 p. m. to give the committee time to prepare a report.
>
> On reassembling at 4 p. m. the committee reported a Constitution and set of By-laws. These were taken up article by article and discussed, some minor amendments accepted and finally approved and adopted as a whole by the meeting.

In accordance with the report of the nominating committee the following persons were elected by ballot as permanent officers of the association:

President—Dr. J. H. Montgomery, Marshall
First Vice President—Dr. Edward Cox, Battle Creek
Second Vice President—Dr. O. S. Phelps, Homer
Secretary—Dr. John P. Stoddard, Albion
Treasurer—Dr. M. A. Garcia, Battle Creek

The first subject announced by the President for discussion was that of Diphtheria for consideration at the next meeting. Dr. O. S. Phelps and Dr. O. C. Lyon were chosen to conduct the discussion, and Dr. M. A. Garcia was appointed as essayist.

The society has been a progressive one, taking a lead in medical affairs and thought.

In its first meeting the Society urged the passage of a law registering all physicians. The second meeting, among other things, had a paper on the application of plaster bandages.

At the meeting of December 4, 1877, there was a discussion and report of typhoid fever, at which it was found all the cases were within the distribution of a certain line of soft water. This was a paper by Dr. J. H. Kellogg inquiring why 44 cases should develop at the College. Dr. Cox suggested water supply as a cause.

In 1878 and for many years, there were both afternoon and evening sessions of the Society and, judging from the minutes, very interesting debates. In September, 1879, the meeting was a discussion as to whether dentists should be considered a separate profession or as specialists in the practice of medicine. In 1881 they proposed plans for placing the vital statistics of the State under the State Board of Health.

In 1882, March 7, there was a very interesting debate by Dr. Geo. H. Green and Dr. S. S. French on the question of "The Periodic Examination of all Practicing Physicians by a State Medical Examination Board." Drs. Kellogg, Cox, and Dr. H. O. Walker of Detroit, the essayist, participated, but the issue was evidently a draw. However, the trend of thought is shown thus early.

In September this same year appeared a lengthy discussion of "Occupations for Women" and the advantages of training them for nursing service.

The September, 1883, meeting was a discussion of the cause and treatment of typhoid fever. Dr. A. W. Alvord said, "At the present time little is known about the cause or prevention of typhoid fever, but I believe it to be a filth disease and a preventable disease." He cited a family he had attended where the well water was contaminated by surface drainage from an adjacent very filthy cow lot. Five of the six members of the family were ill.

The tenth annual meeting in 1885 brought out a long discussion as to whether the bacillus caused consumption or consumption caused the bacillus. Then is a famous old trial, for advertising, of Dr. J. H. Kellogg, extending through twenty pages of the minutes of 1886. The vote was a tie and hence the prosecution did not prevail.

May 26, 1896, the Society, being poorly attended on account of academies flourishing in each city of the county, voted to disband, but reconsidered, and, with Dr. W. H. Haughey as Secretary, began increasing its interest and attendance.

When the State Medical Society was reorganized in 1902, Calhoun was so well organized that it secured Charter No. 1. Since that time the Society has had monthly instead of quarterly meetings, and has grown in worth to the community and the State.

This society has given four presidents to the Michigan State Medical Society—Cox, French, Alvord and Stone. It has given other State officers, Section officers, etc., in proportion. It has had members of the State Board of Registration and the State Board of Health. It has given to the Military service many of its members, starting with Dr. A. L. Hays in the Black Hawk War. The Civil War claimed Dr. O. C. Comstock, Jr., Capt. of troop and killed in the Battle of the Wilderness; Dr. Samuel M. Holton and Dr. S. S. French of Battle Creek; Dr. Milton Chase, Battle Creek; Dr. Edwin Church, Marshall; Dr. Willoughby O'Donoghue, Albion; Dr. Henry Ostrand, Albion; Dr. L. B. Thayer, Battle Creek; Dr. Wm. Campbell, Battle Creek; Dr. Thomas Eggleston, Dr. C. J. Lane, Marshall, and Drs. A. W. Alvord and W. E. Dickey, who moved to Battle Creek later.

THE BATTLE CREEK ACADEMY OF MEDICINE AND DENTISTRY

Indigency is the lack of, or the inability to obtain, or pay for, the common necessities of life such as food, fuel, clothing or shelter, as well as medical care when needed.

It is difficult at times to get civil authorities to agree to the principle that payment to physicians for medical care to indigents is as much an obligation of the State as is food, fuel, clothing, or shelter. Boards of Supervisors, Poor Commissioners, and City Administrators have very little idea that medical service represents a tangible commodity. Political agencies as well as the general public have been slow to give to the medical and dental professions their rightful place in the set-up of the oncoming rush for welfare service.

This misunderstanding of the Board of Supervisors, and the City and County officials, led to the formation of a group from the Calhoun County Medical Society to study Medical Economics. The result is the Battle Creek Academy of Medicine and Dentistry, the two professions being so intimately interested in these problems.

Doctors and Dentists of Battle Creek are about the average mine run variety. When not pulling for themselves and their patients, they are generally pulling for each other. They attend staff meetings at the hospitals the second and third Tuesday eve-

nings of each month; attend the County Medical Society on the first Tuesday; but the fourth Tuesday evening is when they all turn out to the "Academy," and it is of the Academy of Medicine and Dentistry that I want to tell. This organization is a sort of an economic chapter of the County Medical Society, having certain ideals and objectives quite separate from the scientific side of Medicine. It is incorporated under the laws of the State of Michigan and this article aims to give you the facts and figures pertaining to what it accomplished in 1933. For a complete year it handled every indigent case in the City, and kept detailed records of office visits, house calls, night calls, hospital calls, operations, confinements, and all other types of service. The Academy employed its own social service worker to determine indigency, employed its own account to keep its records, and audited its own bills, payment of which was made from a monthly stipend from the City. Each item of service was billed to its auditors at the usual prevailing rate, and the auditors scaled down the bills and prorated the payment in accordance with the amount of money available from the City.

During the year of 1932 a committee from the Medical Society made a study of the costs of medical care in Battle Creek during the previous three years. This was accomplished with the coöperation of the City and County officers, and the figures made available were used as a basis of an estimate for the 1933 service.

Based on these findings the Academy of Medicine and Dentistry contracted with the City of Battle Creek to care for its indigent sick for a flat sum of $12,000.00 for medical cases, and another contract for $900.00 for dental cases. This service, however, did not include hospitalization expense, or venereal or contagious disease, orthopedic appliances, or such unusual drugs as insulin, salvarsan, vaccines, sera or medicines not usually carried by the general practitioner in the ordinary pursuit of his practice. These items were paid for by the City by order or prescription to the local drug stores.

The contract for dental cases included those measures necessary for the relief of pain and the eradication of contagion and such additional measures, other than permanent restorative dentistry, as might be deemed necessary in the successful treatment of disease or injuries.

It should be stated that these two contracts for medical and dental care were made on a basis of at least twenty per cent less than the known costs of indigent care in other years as revealed by our preliminary survey. This was due to an expected shortage or delinquency in tax collections.

In addition to agreeing to furnish medical and dental service upon a basis considerably less than the known costs in other years, when even less indigency prevailed, the Academy of Medicine and Dentistry agreed to employ, at its own expense, an experienced social worker, a former county nurse, who, together with the City Director of Relief, determined the social status and worthiness of each case. Heretofore, the City had borne the expense of the social worker.

Aside from the physicians of the Sanitarium whose work is limited to the institution, there are 52 physicians and 27 dentists, members of the Medical and Dental Society in active practice in the city. The two local approved hospitals are open to members of the Medical and Dental Societies. One hospital has two hundred beds, while the other, an older institution, has a few less than a hundred beds. In Battle Creek four large office buildings in the retail district afford office space for most of the doctors, but few having offices attached to their homes.

Each member of the Academy who has an office or house call from a family or individual who appears to be unable to pay his service, who is already receiving fuel, food, or rent from the City, would render first aid at once, with no question as to forthcoming pay. On a special notification card the doctor reports the name, age, and kind of service rendered, to the social worker, who, together with the City Director of Relief, investigates the family, and, if found worthy, the service is continued until the patient recovers. If found unworthy of city relief, the doctor would proceed to treat the case as any other private patient. Cases requiring hospitalization are not sent to the hospital, except in emergency, until approved by the City Director of Relief. Emergency cases are sent to the hospital and investigated afterwards.

At the end of each month each doctor or dentist sent to the Academy headquarters an itemized statement of each case served. These bills were made out at the prevailing rates in this City for professional service. An auditing committee, composed of officers of the Academy, audited all bills rendered by the members, and satisfied themselves that the bills represented claims for actual services rendered.

All approved bills were ordered paid by the treasurer, but were prorated for payment after deducting the overhead expense of the Academy; viz., the social director, telephone, auditor, etc. Careful records of cases and systematic accounting of the funds were kept.

List of services rendered by the Academy of Medicine and Dentistry January 1 to December 31, 1933:

Office calls 5,696, House calls 4,042, Hospital calls 688, Night calls 210, Appendectomies 49, Confinements 93, Tonsillectomies 50, Herniotomies 9, Fractures 40. Incomplete Abortions 10, Minor surgical 114, Major surgical 63, Mastoidectomies 3, X-ray Examinations 102, Cystoscopies 2.

The above services were billed to the auditing committee at the regular rates charged in this city, viz., $2.00 for office treatments, $3.00 for house calls, $5.00 for night calls, etc., etc.

The total bills for all services amounted to $49,782.25. In order to keep within the contract the auditing committee had to trim the bills down to $8,929.20. The overhead cost of investigator and bookkeeper amounted to $3,070.80 or a total of $12,000.00, the amount of the contract. At this rate each doctor averaged 17.9 cents on the dollar of bills rendered. The table below gives the figures for both the medical and dental service.

Medical

12 Mos. Doctors bills as rendered	$49,782.25	
Cash available from City under contract	12,000.00	
Deficit, or amount of service rendered, but not paid	$37,782.25	75.9%
Representing 75.9%		
Expenses for investigators, phone, etc.	$ 3,070.80	6.6%
Actually paid Doctors	8,929.20	17.9%
or 17.9 per cent of bills		
Total	$12,000.00	

Dental

12 Mos. Dental Bills as rendered	$ 1,856.75	
Cash available for City contract	900.00	
Deficit, or amount of services rendered but not paid	956.75	51 %
Expense for investigations, phone, etc.	230.22	12.1%
Payments made to dentists	669.78	36.3%
Total	$ 900.00	

Thus was the year 1933 cared for. In 1934 we had the new set-up of the Federal Government taking part in local relief under the Michigan Emergency Relief Administration. Our Battle Creek Academy of Medicine and Dentistry has entered into an agreement whereby we render aid as last year, send in the same reports and the bills are paid to the academy auditor, who distributes the money to our members, deducting 2 per cent for expense of the office, auditing, etc., and we audit all our bills through our own auditing committee. This has worked very satisfactorily with these accounts chargeable to the Emergency Relief Administration or the City, but the Afflicted Children's

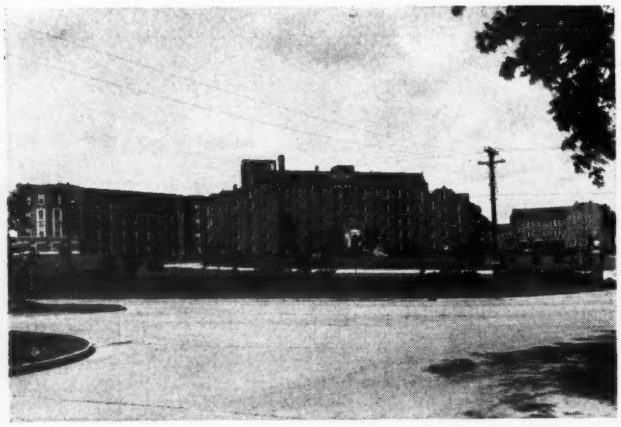
accounts are a complete washout so far, no one being paid anything for medical or surgical emergency cases. The Probate Judge and the Poor Commissioner demand that the doctors sign a waiver of their fees before they will approve the hospital bills for payment by the State.

The Attorney General has been appealed to twice for at least a ruling on this waiver question but, so far, has failed to reply. We believe we are entitled to his interpretation of the Law.

The Academy hesitates to clamp down and refuse aid to children's emergencies but this will have to be the next step, we fear.

THE LEILA Y. POST MONTGOMERY HOSPITAL

The Leila Y. Post Montgomery Hospital was established in 1927 through a gift by Mrs. Leila Y. Post Montgomery to the Sisters of Mercy. The Hospital was erected by Mrs. Montgomery on a beautiful and spacious site, given to the sisters, and



LEILA Y. POST MONTGOMERY HOSPITAL

opened for patients on March 11, 1927. It had 96 beds and 20 bassinets, a school of nursing, and an out-patient department. Promptly the hospital was operating to capacity and gave evidence of the wisdom in planning for expansion. In 1929 Mrs. Montgomery, recognizing the need for more room and more departments, gave an addition increasing the capacity to 200 beds and 20 bassinets. There is complete equipment for x-ray (excepting deep therapy), hydro-, electro- and physio-therapy, a wonderfully beautiful and fully equipped children's department, a department closed off from the rest of the hospital for thyroid and kindred cases; a surgery completely equipped with five operating rooms; an emergency department including first aid rooms, beds, and operating room. The Chapel is a retreat most restful and inspiring.

Sister M. Bernadette is the Superintendent, and Dr. Russell Mustard is Chief of Staff. Dr. A. E. MacGregor was first Chief of Staff and served one year, Dr. R. C. Stone served one year, Dr. Wilfrid Haughey served for four years, and Dr. Mustard is now serving his second year.

The hospital is familiarly and lovingly called "Leila" hospital by everyone. It is as nearly fireproof and sound-proof as money can make it, and is administered by a board of three: Sister Bernadette, Father Maurice Walsh, the Pastor of St. Philips parish, Battle Creek, and Dr. Wilfrid Haughey.

On the same grounds and corresponding in architecture is a beautiful Nurses Home, provided for in the will of the late Louis F. Worstein. This building contains rooms, class rooms, social hall and assembly hall. There is a training school of about forty student nurses.

The Staff meets the second Tuesday of each month and usually has a speaker from outside of the city in addition to its own program. Clinical and pathological conferences are also held at the call of the pathologist. There is a beautifully furnished and spacious parlor for the doctors on the main floor, where a library is maintained, and conferences may be held.

The staff is divided into departments of specialization headed by Dr. Russell, Mustard, Chief of Staff; Ben G. Holtom, Vice Chief; Robt. H. Fraser, Secretary; Surgery, A. E. MacGregor; Orthopedics, C. W. Brainard; Obstetrics, H. F. Becker; Medicine, C. R. Hills; Ophthalmology, R. D. Sleight; Oto-Laryngology, Wilfrid Haughey; Pediatrics, S. L. Lowe; X-ray, W. O. Upson; Dentistry, John H. Rockwell; Laboratory, A. A. Humphries.

NICHOLS MEMORIAL HOSPITAL

Nichols Memorial Hospital was established in 1889 and has been in continual operation ever since. It was started by an early-day organization called "The Charitable Union of Battle Creek" and was made possible by the beneficence of Hon. John C. Nichols, President of the Nichols & Shepard Threshing Machine Co. of this city—hence the name, "Nichols Memorial Hospital."

The hospital is still owned and operated by The Charitable Union, which is made up of two representatives from each church, lodge and society of the city and vicinity desiring representation,—about forty-eight members at this time. From this number a Board of Trustees for the hospital is chosen, consisting of eleven members who in turn elect their own officers annually. The present President is Mrs. W. N. Dibble; Secretary, Mrs. L. H. Sabin; Treasurer, Mrs. H. W. Cavanagh—all of this city.

The Board of Trustees selects a Superintendent for the hospital and she conducts all business of and for the hospital, but may present, at the regular monthly meetings of the Board, any matters she feels should have their special attention

The hospital maintains a fully organized Staff of physicians, with regular meetings held once a month. Applicants for membership on the Staff must be regular licensed practitioners of medicine, surgery or dentistry, and who are members in good standing in the Calhoun County Medical Society, or the Society of an adjoining county, or of the American Dental Association. They must be approved by the Board of Trustees as well as by the Staff.

From among the members of the General Staff the Board of Trustees elects the eleven members of the Executive Staff and their term of service is three years. They elect their own officers annually. It is under direction of the Chief of Staff, Dr. Joseph E. Rosenfeld, holding that position.

The Associate Staff is made up of the new members who are expected to serve in this division for two months, regardless of their qualifications, under the supervision of the head of the specialization department he has chosen. The entire Staff is subdivided into specialization departments each headed by its chairman: viz., Surgical, Dr. A. E. MacGregor, chairman; Medical, Dr. A. M. Giddings, chairman; Eye, Ear, Nose and Throat, Dr. R. D. Sleight, chairman; Obstetrics, Dr. H. M. Lowe, chairman; Pediatrics, Dr. F. J. Melges, chairman; Radiology, Dr. C. S. Gorsline, chairman; Emergency, Dr. N. H. Amos, chairman.

There is a School of Nursing in connection with

the hospital averaging forty students. This school was organized by the doctors themselves about two years after the hospital was opened. They formed a corporation with shares at $5.00 to maintain the school, but soon got into such financial difficulties that it was decided to turn the project over to the ladies of the Charitable Union to conduct and maintain and it still remains under their supervision. Dr. W. H. Haughey is the only surviving member of the committee who organized this school, and he is still in active practice and much esteemed as a loyal friend of the hospital and school. For the past three years the school has affiliated with the Battle Creek College whereby the students, at completion of their three year nursing course, have a one year college credit in addition to their diploma in nursing. This makes entrance requirements high, but has been found to be very satisfactory to both the school and the individual student.

As the years have gone by, new equipment has been purchased as it has come out and was seen to be necessary in the care of the sick or useful for their comfort, and building maintenance kept up. But an old-type building presents certain problems that are somewhat difficult to solve in trying to maintain the highest type of procedure and service. Hence, in 1929 an organization of Battle Creek citizens was formed called the "Battle Creek General Hospital Association" who took upon themselves the responsibility of starting the move for a new hospital building.

Through public subscriptions and with the help of certain assets the shell of a fine new building was erected. It stands at the edge of Irving Park, with entrances from two streets—West and Tompkins. Completion of this project was delayed through the last few depression years but when it is finished the convenient and modern type of building together with the roomy grounds and the attractive outlook toward the park will make it a hospital of which Battle Creek may well be proud. When the new building is ready for occupancy, all properties and holdings of Nichols Memorial Hospital together with the organization as a hospital will be taken over by the new Association and continued at the new location.

We wish to extend a hearty welcome to the members of the Michigan State Medical Association as it meets in Battle Creek in the near future. We cordially invite you to visit our hospital and to take advantage of any service we may be able to give you. Between the hours of 8 and 10 a. m. you will be welcome to observe any operations that may be scheduled. We feel it is an honor to have your organization with us and believe it will be our own fault if we do not obtain much good and help from such a gathering.

AMERICAN LEGION HOSPITAL

The American Legion Hospital is a 350 bed sanatorium on U. S. Highway No. 12, three miles west of Battle Creek. It was founded in November, 1921, by the American Legion, Department of Michigan, for the care and treatment of Michigan's tuberculous war veterans. It was dedicated by Marshall Foch. It is operated by the American Legion on a self maintenance basis without grants, state aid or funds other than the money collected for the actual care of patients.

After seven years the number of veterans needing hospitalization for tuberculosis was reduced to the extent that the facilities of the hospital were made available to the various counties for the care of their indigent cases of tuberculosis. Since 1928, there has been a gradual increase in the number of county cases hospitalized.

AMERICAN LEGION HOSPITAL—ADMINISTRATION BUILDING

Patients are sent to the American Legion Hospital through the Veterans Administration and from counties all over the state where there are no facilities for the care of cases of tuberculosis, and from counties whose sanatoria are full. Patients can also be accepted as private pay cases. Since June, 1924, female patients have been admitted. All types and stages of tuberculosis are accepted for treatment, but there are no facilities for the care of children.

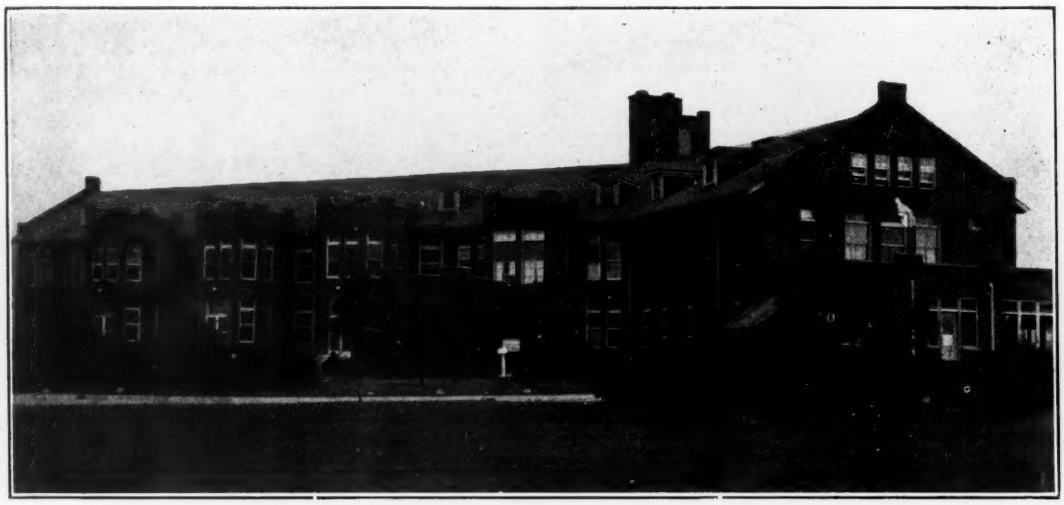
The hospital is of the cottage-infirmary plan. There are two infirmary pavilions, one of 60 single rooms for female and one of 60 rooms for male patients; one receiving ward of 16 beds for men and eight avenues of four-bed cottages. One avenue and part of one informary are used for colored patients. It is situated on a small elevation giving a view of the Kalamazoo valley, and presents ideal surroundings for the treatment of tuberculosis.

In the medical wing are located the operating room, conference room, x-ray department, clinical laboratory, library, nose and throat room, light therapy room and physician offices. The laboratory

is equipped for all forms of clinical laboratory, blood chemistry, bacteriological and serological work. The x-ray department includes photographic work. The dental work is done in the hospital by a part time dentist.

The diet kitchen provides special diets for diabetic, nephritic cases, and tuberculous enteritis, laryngitis, etc., under the supervision of a competent dietitian.

An occupational therapy school is operated in the hospital employing three teachers. Through this group. For this reason many of the cases have been given bilateral collapse therapy, some bilateral phrenic operations, some bilateral pneumothorax, some pneumothorax on one side and phrenic surgery on the other, a few had pneumothorax on one side and thoracoplasty on the other, and one had, in the course of his hospitalization, bilateral phrenic surgery, bilateral pneumothorax, and a unilateral thoracoplasty, upper stage. The results obtained from this program of extensive collapse therapy are sufficiently good to warrant further application



CALHOUN COUNTY PUBLIC HOSPITAL

work patients are taught to do leather work, wood work, weaving, rugmaking and fancy work, such as tatting, embroidery work, bead work, etc. In doing this work they spend much time pleasantly which would otherwise be long hours spent in idleness.

The medical staff includes a Director, Dr. W. L. Howard, and three resident physicians, also a laboratory and x-ray director and assistant. The visiting staff includes prominent Battle Creek and Detroit physicians in the fields of surgery, internal medicine, eye, ear, nose and throat, orthopedics, psycho-neurology and pathology. Staff Conferences are held weekly when cases are presented for diagnosis, discussion of treatment and discharge from treatment. All cases in the hospital are considered in this conference every two to three months.

In 1930, the modern method of treating pulmonary tuberculosis—collapse therapy—was introduced into the hospital routine. A few pneumothorax cases and five phrenic operations constituted the collapse therapy in that year. A new modern surgical unit was built and completely equipped for this form, as well as other forms, of surgery. All thoracoplasties and other operations are done at the hospital.

Since 1930, collapse therapy has had wider application, and in 1933 over 80 per cent of the patients admitted to the hospital were treated with collapse measures. Phrenic surgery was used alone in 19 per cent cases, pneumothorax alone in 21 per cent cases. Phrenic surgery and pneumothorax combined in 27 per cent cases, and thoracoplasty in 13 per cent cases. Three cases of other forms of collapse therapy are recorded. Of the patients admitted over 68 per cent had far advanced pulmonary tuberculosis, 23 per cent had moderately advanced lesions and only 9 per cent were in the minimal of the various forms in the field of bilateral therapy. In the past seven years the deaths from tuberculosis have been cut in half and the number of arrested cases more than doubled.

The American Legion Hospital, because of the active work in the field of tuberculosis, ranks with the five leading institutions in Michigan in the treatment of tuberculosis, and is in a measure responsible for Michigan having the honor of leading the world in the treatment of tuberculosis. It serves a great part of the state in the place of a State Tuberculosis Sanatorium and has yet more beds available to extend this service. Of 350 available beds only 170 of them are occupied at the present time.

The hospital is more than an institution for the treatment of tuberculosis. It is an educational center in the field of public health, chiefly as it is related to precaution, early diagnosis and treatment of tuberculosis. The patients in the hospital are taught to guard against the spread of the disease and also much about the symptoms and treatment. Friends and relatives are instructed in many phases of the field of tuberculosis, and through the channels of Woman's Auxiliaries, Rotary Clubs, Women's Clubs, Parent-Teachers Associations and Legion meetings the information about tuberculosis, its dangers, causes, symptoms, diagnosis and treatment is constantly carried to a large part of the general public of the state.

The American Legion Hospital, with part of its facilities given to the care of county cases of tuberculosis and its program of tuberculosis education being extended, constitutes another phase of the great community service program of the American Legion, Department of Michigan.

CALHOUN COUNTY PUBLIC HOSPITAL

An attractive area of rolling country two miles east of Battle Creek provides the setting for the Calhoun County Public Hospital. The building is located a quarter of a mile from highway U. S. 12 and can be reached in a few minutes' drive from the city.

The capacity of the Hospital is 75 beds and since the opening of the institution on February 12, 1924, a total of 919 patients have been hospitalized. A considerable number of these have been able to return to their homes to resume their normal place in society and industry. A daily average of 70 patients has been maintained during the past six months.

All types and stages of tuberculosis are accepted including pulmonary, glandular, bone and joint tuberculous conditions.

Complete Laboratory, X-Ray and Heliotherapy departments are maintained, where modern technic and equipment assure the patient of correct and up to date facilities for their diagnosis and care. Approximately 40 per cent of the patients hospitalized are receiving collapse therapy.

Weekly chest clinics are conducted by a well established Out-Patient department. Every Tuesday morning many patients arrive from miles around for chest examinations, which are free, while a nominal charge is made for x-ray examination when this is indicated. The number of chest examinations made in the clinic reaches approximately 200 cases per month. Follow-up work is carried on by the Social Service Department by keeping in close touch with patients who are being cared for in their homes and by making the proper arrangements for those needing hospitalization. Close contact is maintained with discharged patients, who are expected to report periodically for a check-up.

The largest proportion of the patients are of the neuropsychiatric type although the hospital is equipped to handle general conditions also.

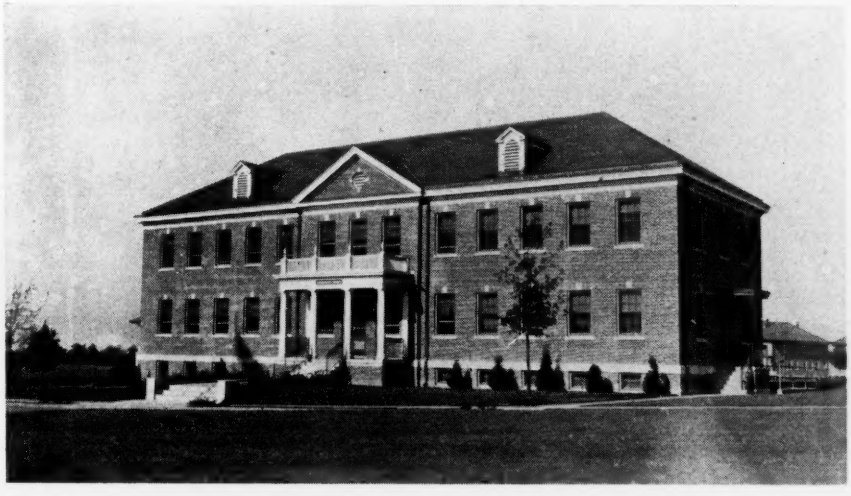
The Medical Staff consists of a resident staff of nine physicians and four consultants, all graduates of reputable medical schools and qualified under the United States Civil Service Rules and Regulations. Inasmuch as the physicians come from different states and are subject to frequent transfers, it is not possible for them to be active members of the local county societies. Both the Calhoun and Kalamazoo County Societies extend the hospital medical staff the courtesy of attending their meetings and the hospital is on the mailing list of the two county societies.

The administration of the hospital is the responsibility of the manager, a physician. A business manager supervises the business activities, while a clinical director looks after the medical work of the Station. For treatment of patients reliance is placed mainly upon physiotherapy and occupational therapy. The use of drugs is incidental to whatever physical complications occur. Surgical conditions are such as one might expect in a community of comparable size. The greatest problem in treatment is largely one of re-education. Specially trained occupational therapy aides endeavor to stimulate the attention of patients, either in craft work or in various outside activities, looking forward to a future industrial adjustment again in civilian life. This adjustment outside the hospital is assisted by the hospital social service, the Red Cross and service organizations in home communities.

At present, applications for hospitalization at the Veterans' Facility, Camp Custer, are made on Form P-10. These should be mailed to the hospital, where the eligibility of the applicant is determined. When space is available the applicant is so notified. Commitment is necessary when a patient is brought to the hospital contrary to his wishes. Those patients who draw compensation or have accumulated estates must supply their own clothing and incidentals.

While most of the patients are from the State of Michigan, applicants are also received from Ohio, Indiana, Illinois, and Wisconsin. At the present time the hospital has a waiting list, so no patient should be sent to the hospital until it has been determined that he can be admitted.

Visiting days at the hospital are daily from 8 a. m. to 4 p. m.



ADMINISTRATION BUILDING, U. S. VETERANS HOSPITAL, CAMP CUSTER

VETERANS' ADMINISTRATION FACILITY

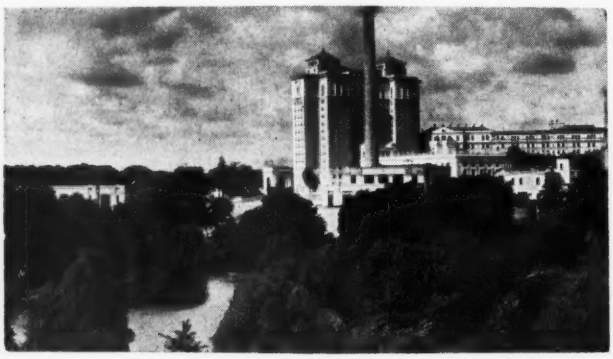
CAMP CUSTER, MICHIGAN

The Veterans' Administration Facility located on a part of the Army Reservation at Camp Custer, Michigan, was formally opened for the reception of patients October 15, 1924. Since that date 2,319 patients have been admitted for treatment. From an original bed capacity of 532, remodelling of old buildings and the addition of new ones has increased the number of beds to 835.

THE BATTLE CREEK SANITARIUM

Starting as a Water Cure in a small farmhouse in 1866, the institution was incorporated the following year as the Western Health Reform Institute as a stock company. At the end of the first year the stockholders voted to make the Institute a philanthropic and eleemosinary enterprise by devoting the earnings to betterments and charity.

After a few years of prosperity the patronage became so small and the small capital so much impaired, it was evident that the project had failed and must be wound up. Dr. John Harvey Kellogg, then a recent graduate from Bellevue Hospital College, was induced to undertake to reorganize the enterprise. He took charge October 1, 1876, and undertook to create a new type of medical institution. The first step was a change of name to Battle Creek Sanitarium. Scientific methods were introduced in place of the crude routine practices of the primitive Water Cures which under lay management had fallen into disrepute. The unattractive and unbalanced diet was improved, electricity, mechanotherapy, massage, and Swedish movements and the various resources of rational and scientific medicine were added to the therapeutic program, laboratories for the application of every test useful in diagnosis were fitted up and patronage soon began to improve. Starting in October, 1876, with 12 patients, the number soon increased and by the following spring the number of patients was nearly 100. With $10,000, the first winter's earnings, the erection of a four story main building to accommodate 100 patients was begun and finished at a cost of $125,000, of which $115,000 was borrowed.



VIEW ACROSS IRVING PARK. SANITARIUM IN DISTANCE.

Within a few years, additions were made increasing the bed capacity to 400. A hospital building was next erected and a nurses' dormitory and adjacent cottages were purchased until the buildings numbered sixty.

In 1898, the thirty year charter having expired, a new charter was obtained in which the larger aims of the new organization were stated as follows:

"a. The maintaining of a hospital and charitable asylum within the State of Michigan for the care and relief of indigent or other sick or infirm persons.

"b. The performing of such work and acts as it is allowed by the State to perform, with its property and funds, and required for its main and direct purpose as aforesaid, of an undenominational, unsectarian, humanitarian, and philanthropic nature, and also such work and acts so permitted as aforesaid, as are in the line of sanitary, dietetic, dress, and other hygienic and temperance reforms."

In February, 1902, the Main Building and Hospital were destroyed by fire. The entire equity of the enterprise was wiped out, the debts exceeding the assets by $18,000. With only ashes to offer for security, it was necessary to raise $1,000,000 to erect a new, fireproof main building. Thanks to the confidence of the friends of the institution, mostly former patients, loans for the amount needed were obtained, coming in from hundreds of sources just fast enough to meet an outlay of $20,000 each week until the end of a year the building was finished.

The new building with cottages provided rooms for 500. In a few years, the accommodations were again found to be insufficient, and a large building erected as an opposition and occupied for a time by McFadden, was purchased at a nominal price, raising the capacity to 800 beds for patients. At this time, the whole Sanitarium family, including nurses, attendants, technicians, and physicians, numbered in the busy summer months more than 3,000, and a patients' waiting list of a hundred was not unusual. In due time, the debt was paid and six years ago the growing patronage required the erection of a large addition to the main building, which increased the capacity by more than 500 beds. During the height of the season of 1929, every room was occupied.

It has been the constant aim of the management to make the work of the Sanitarium supplementary to that of the family physician and to coöperate freely with the profession in its humanitarian work.

Having no endowment, it was necessary that the work should be made self-supporting. This required a departure from the usual plan of hospital management. Physicians are engaged as full time employes, and are not allowed to conduct private practice or to receive fees. All fees or other remuneration for medical or other services, including fees for examinations, operations and treatment by specialists, which are the usual perquisites of the attending physician or surgeon, have gone into the treasury of the institution. By this means the institution has been not only fully self-supporting, imposing no burden of expense upon either the State or the community, but has been a source of financial betterment as well as medical relief. Without the fees, the institution not only would have made no financial growth, but would not have been self-supporting. It should be added that during the greater part of its history, the compensation of physicians and managers has been so small as to make their services almost a contribution. This generous and self-sacrificing attitude on the part of its faculty has alone made possible the existence and financial growth of the institution.

It has been a constant aim of the Sanitarium management to make contributions to medical progress both through its unusual clinical opportunities and through researches undertaken in laboratories provided for the purpose.

As perhaps the most important of the therapeutic innovations developed here, may be mentioned the medical uses of the electric light, especially the light cabinet, and the various forms of photophores now usually termed infra-red appliances. The sun bath had been in use since 1876, but on account of its uncertainty, and usual absence in winter, the arc light was substituted and shown to be an excellent substitute for sunlight. This was done several years before (1891-94) Finsen began his work at Copenhagen. The cabinet and other appliances, first used in 1890, were exhibited at the Chicago Exhibition of 1893, and there attracted the attention of a German doctor who secured their manufacture in Germany, where, in a few years, the cabinet became very popular. It was later imported into this country as a novelty by the Kny-Scheerer Company of

New York, and has since come into general use, replacing the Turkish and hot air baths.

The Sanitarium was one of the first institutions in this country to establish a bacteriological laboratory. After a visit to the Pasteur Institute, in 1889, the late Dr. Paul Paquin, a graduate of the Institute, was employed to organize and conduct the laboratory and to edit, with the collaboration of Metchnikoff and other European authorities, with Senn, Belfield, Burrill and others in this country, the *Bacteriological World*, the first, and for some years the only, publication of the sort in this country.

The Sanitarium was the first institution in this country to introduce the systematic use of the test meals of Hayem and Winter and Ewald. More than 40,000 such examinations have been made.

More than fifty years ago, food researches were begun with a view to the determination and development of their therapeutic values, and especially with the idea of encouraging the consumption of plant foods. This work was encouraged by the U. S. Department of Agriculture through a request some 40 years ago from Professor Dabney, then the Assistant Secretary of Agriculture, for the preparation of a substitute for meat from plant proteins so as to be prepared for the time when flesh meats would become scarce and high in price because of the settling up of the Western grazing lands by farmers.

More than a hundred different foods have been developed in our laboratories, some of which have become very popular, especially flaked cereals, and have made Battle Creek widely known for its food industries.

From the food laboratories were later developed a nutrition laboratory which, under the direction of Dr. Helen Mitchell, has made interesting and valuable contributions to "The Newer Knowledge of Nutrition."

A visit to the Pavlov Laboratory in St. Petersburg, in 1907, led to the establishment after the World War of a Pavlov Laboratory under the direction of the eminent Professor Boldyreff, for many years first assistant to Professor Pavlov, and executive head of his laboratory. The contributions of this laboratory are embodied in a series of remarkable papers by Professor Boldyreff and his son Ephraim.

In harmony with its declared purpose, the institution has been active in an educational way. In 1880, it began courses of instruction in nursing, the fourth training school for nurses in the United States. It differed from all others in the fact that it was based upon physiotherapy instead of medicinal agents. Each nurse received thorough training in the technic of hydrotherapy, massage, the Ling system of corrective gymnastics, the use of electricity, and dietetics. Nurses were also taught more than a dozen ways of relieving pain and getting patients to sleep without drugs and to correct constipation by other means than medicinal laxatives, and also the hydriatic treatment of fevers. The graduates were soon in great demand and in a few years the school became one of the largest in the country. By request nurses and physicians were sent to instruct nurses and physicians in State institutions in Illinois, Indiana, Ohio, Michigan, and other states, and the neutral bath and other hydriatic measures soon came into general use in state institutions for the insane. The superintendent of the Kalamazoo State Hospital reported that after his nurses were instructed in the use of hydriatic hypnotic methods, although the number of patients had doubled, they used less sleep-producing drugs in a whole year than they formerly used every week.

More than 2,000 nurses have been graduated from the Sanitarium Training School, and the system of sanitarium nursing developed here, in teaching which the late Dr. Kate Lindsay rendered invaluable aid, is now being taught in scores of training schools in this country and Europe.

In the year 1906, a School of Home Economics was organized to meet the demand for trained dietitians and to utilize the extraordinary opportunity for practical training of dietitians afforded by the Sanitarium. More than 900 dietitians have been graduated from this school.

In the year 1909, a School of Physical Culture was organized from which 775 graduates have been sent out. In connection with the physical education department of the Sanitarium, a strength testing apparatus was developed more than 40 years ago, by means of which the strength of 42 groups of muscles, all the principal muscles of the body, may be accurately determined and graphically represented so as to show at once the percentage variation from the normal average for a person of the same height. With this apparatus, more than 30,000 persons have been tested and shown their defects. This apparatus is in use in all the United States military training schools. Five are in use in Annapolis, where the system of training developed here by its aid has been in constant use for more than 20 years.

Ten years ago, the three schools were segregated from the Sanitarium and organized under a separate charter, with the addition of a fourth year and a liberal arts department, as Battle Creek College. The College was soon recognized and admitted to membership by the North Central College Association. The improvement and preservation of health through meticulous biologic living is a fundamental purpose of the college and is made a part of its discipline.

The Sanitarium is by many supposed to be connected with a small sect or religious body. This is not the case. The original water cure, while a private corporation, was closely associated with the church in which the founders were members; but soon after its reorganization under its new charter as a non-sectarian institution, its church associations were definitely and completely severed. It is wholly independent and in no way in the slightest degree connected with or controlled or influenced by any cult, creed, or religious organization. Those customs peculiar to the place which give a contrary impression are merely hang-overs from former years and have no religious significance.

The following brief summary will give something of an idea of the volume of the work of the institution:

Number of patients treated to January 1, 1934, 259,181.
Number of operations performed, 57,390.
Number of physicians treated, 4,661.
Number of patients referred by physicians, 7,795.

WRITE FOR YOUR
HOTEL RESERVATIONS
AND PLAN TO PROFIT BY
ATTENDANCE

OFFICIAL PROGRAM

114th Annual Meeting Michigan State Medical Society

September 11, 12 and 13, 1934

W. K. Kellogg Auditorium, Battle Creek, Michigan

OFFICIAL CALL

The Michigan State Medical Society will convene in annual session in Battle Creek on September 11-12-13, 1934. The provisions of the Constitution and By-laws and the official program will govern the deliberations.

GEORGE L. LEFEVRE, *President*
B. R. CORBUS, *Chairman Council*
H. A. LUCE, *Speaker*

Attest:

F. C. WARNSHUIS, *Secretary*

MEETING PLACE

All sessions will be held in the W. K. Kellogg Auditorium.

General Meeting

Wednesday Morning, September 12, 11:00 A. M.

MAIN AUDITORIUM

Presiding: GEORGE L. LEFEVRE, President—Muskegon

1. Invocation.
2. Welcome, Address—A. E. McGregor M.D., President Calhoun County Medical Society.
3. General Announcements—F. C. Warnshuis, Secretary.
4. President's Annual Address—George L. LeFevre, Muskegon.
5. Address—(Invited Guest).
6. Address—W. L. Bierring, M.D., President American Medical Association, Des Moines, Ia.
7. Induction into Office of President-elect Richard R. Smith, Grand Rapids.
8. Adjournment.

Note: The public is invited to attend this general meeting.

HOUSE OF DELEGATES

Speaker: H. A. Luce, Detroit.
Vice Speaker: Frank E. Reeder, Flint.
Secretary: F. C. Warnshuis, Grand Rapids.

First Session

Tuesday, September 11, 1934, 9:30 A. M.

W. K. Kellogg Auditorium

1. Call to Order.
2. Report of Credentials Committee.
3. Roll Call of Delegates.
4. Speaker's Address.
5. President's Address.
6. President-Elect's Address
7. Annual Report of the Council.
8. Appointment of Reference Committees.
   (a) Council's Reports.
   (b) Society Business.
   (c) Miscellaneous Business.
   (d) Reports of Committees.
9. Election of Nominating Committee to Nominate:
   (a) Three Delegates to A. M. A.
   Terms expiring—J. D. Brook, C. S. Gorsline and H. A. Luce.
   (b) Three Alternate Delegates.
   Terms expiring—T. E. DeGurse, R. H. Denham and W. C. Ellett.
   (c) Place 1935 Annual Meeting.
10. Committee Reports:
    (1) Legislation.
    (2) Woman's Auxiliary.
    (3) Radio Committee.
    (4) Preventive Medicine.
    (5) Delegates to A. M. A.
    (6) Maternal Welfare.
    (7) Therapeutics.
    (8) Cancer Committee.
11. Report of Committee on Economics.
12. Resolutions. (All resolutions are to be presented in triplicate.)
13. New Business.
14. Unfinished Business.
    (a) Amendments to Constitution.
15. Recess.

Second Session

Tuesday, September 11, 1934, 2:30 P. M.

1. Call to Order.
2. Roll Call.
3. Report of Reference Committees.
4. Unfinished Business.
5. Resolutions and New Business.
6. Recess.

Third Session

Tuesday, September 11, 1934, 7:30 P. M.

1. Report of Credentials Committee.
2. Roll Call.
3. Reports of Reference Committees.
4. Elections:
   (1) President-Elect.
   (2) Report of Nominating Committee.
   (3) Election of Delegates and Alternates to A. M. A.
   (4) Councilors:
   13th District—B. H. Van Leuven—Retiring.
   14th District—H. H. Cummings—Retiring.
   (5) Place for 1935 Annual Meeting.
   (6) Speaker.
   (7) Vice Speaker.
5. Unfinished Business.
6. Adjournment.

THE COUNCIL

The Council will meet at 8:00 P. M., Monday evening, September 10. Subsequent meetings will be determined by the Council.

SCIENTIFIC SESSIONS

The several Scientific Sections will convene on Wednesday morning from 9:00 to 11:00 A. M. and on Thursday morning from 9:00 to 12:00 A. M.

All the Sections will combine into a general meeting at 1:15 P. M. on Wednesday and Thursday afternoons. Detailed program will appear in the September JOURNAL.

REGISTRATION

Registration and Information Booths will be located in the Gymnasium in the Auditorium.

COMMERCIAL AND SCIENTIFIC EXHIBITS

These will be located in the spacious gymnasium in the Auditorium.

HOTELS

Kellogg Hotel—Headquarters for officers and delegates and invited guests.

Post Tavern—

1. General Headquarters.
2. Ladies' Auxiliary Headquarters. Slogan "Meet Me on the Bridge."
3. Entertainment Tuesday, September 11, 9:30 P. M.
4. Big Night, Wednesday, September 12. Informal. No big banquet or speaker.

Hotel Rates

Kellogg, 120 rooms. Single, $2.50 to $3.50; double, $4.00 and up.

Post Tavern, 240 rooms. Single, $2.50 and up; double, $4.00 and up.

Clifton, 74 rooms. Single, $1.00 and $1.50; double, $1.50 and $2.50.

La Salle, 35 rooms. Single, $1.50 and $2.00; double, $2.00 and $3.00.

La Verne, 30 rooms. Single, $1.50 and $2.00; double, $2.00 and $3.00.

Please write direct to hotel for reservations.

There will also be private homes available, write to Chairman, Dr. R. C. Winslow.

LOCAL COMMITTEES

General Chairman—Wilfrid Haughey.

Meeting Places—C. S. Gorsline, Chairman, H. M. Lowe, L. P. Shipp, Gertrude Johnson, and C. C. Landon.

Hotels—R. C. Winslow, Chairman, J. E. Cooper, F. LaFrance, W. M. Putman, E. Van Camp, and Bertha Mosher.

Entertainment—C. W. Brainard, Chairman, C. R. Hills, B. G. Holtom, F. R. Walters, M. A. Mortenson, and Estella Norman.

Automobiles and Parking—A. M. Giddings, Chairman, W. R. Chenoweth, J. W. Gething, Karl Zinn, and S. E. Barnhart.

Section Monitors—N. H. Amos, Chairman, Phillip Bonifer, R. H. Fraser, T. K. Kolvoord, Stanley Lowe, and L. E. Varity.

Guests and Speakers—H. F. Becker, Chairman, H. Hanson, R. Stiefel, W. O. Upson, and W. M. Dodge.

Registration—Russell Musard, Chairman, Carl G. Wencke, W. M. Dugan, A. W. Nelson, and F. G. Melges.

Finance—A. E. MacGregor, Chairman, S. Pritchard, G. M. Byington, J. E. Rosenfeld, E. L. Eggleston, and C. E. Stewart.

Public Health Exhibit—A. A. Hoyt, Chairman, R. H. Baribeau, W. F. Martin, M. J. Capron, C. G. Fahndrich, W. L. Howard, and Arthur Humphries.

Reception—R. D. Sleight, Chairman, H. R. Allen, A. H. Bennett, J. A. Elliott, W. L. Godfrey, E. E. Hancock, E. L. Hanson, W. H. Haughey, J. J. Holes, Carrie S. Kellogg, Kenneth Lowe, C. G. Morris, Adonis Patterson, W. A. Royer, R. H. Steinbach, N. O. Byland, J. K. M. Gordon, C. W. Heald, John Heald, L. Jesperson, W. B. Lewis, A. B. Olson, W. H. Riley, Paul Roth, W E. Vandervoort, Bruce Whyte, J. H. Kellogg, Nelson Abbott, G. W. Behan, Herman Beuker, E. M. Chauncey, S. K. Church, Robert K. Curry, E. Clare Derickson, G. B. Gesner, George C. Hafford, A. T. Hafford, C. E. Hale, Louis M. Henderson, Phillip M. Henderson, H. A. Herzer, O. Johnson, K. B. Keeler, L. N. McNair, J. Roberts, and A. D. Sharp.

General Medicine

Chairman: C. C. STURGIS, Ann Arbor.

Secretary: A. MERRILL WELLS, JR., Grand Rapids.

Wednesday Morning, September 12, 1934

1. Chairman's Address—"An Appraisal of the Therapeutic Methods Used in the Treatment of Lobar Pneumonia"—C. C. Sturgis, Ann Arbor.
2. "The General Practitioner as His Own Neurologist"—Hugo Freund, Detroit.
3. "Edema and Ascites"—William A. Thomas, Chicago.

   Discussion—

   1. M. A. Mortensen, Battle Creek.
   2. R. L. Novy, Detroit.
   3. Richard M. McKean, Detroit.
4. Address of the President of the Michigan State Medical Society before all Sections at 11 A. M.

COMBINED SECTIONS MEETING

First Session

Wednesday Afternoon, September 12, 1934

1. Subject in Dermatology—(Title and Speaker to be furnished by the Section on Dermatology).
2. "Individualizing Anesthesia"—Reuben Maurits, Grand Rapids.
3. "Acute Hepatic Insufficiency with Special Reference to Liver Function Tests and Therapy"—William A. Thomas, Chicago.
4. "Uterine Fibroids: Their Treatment and Some Correlated Factors"—Joseph L. Baer, Chicago.
5. Clinico-pathological Conference led by Dr. Hartman of Detroit.

SCIENTIFIC PROGRAM

Thursday Morning, September 13, 1934

1. "Agranulocytic Angina"—W. H. Gordon, Detroit.

   Discussion—

   1. C. C. Sturgis, Ann Arbor.
   2. Milton Shaw, Lansing.
2. "Peptic Ulcer: A Consideration of the Factors

of Chronicity and a Critique of Methods of Treatment"—Charles L. Brown, Ann Arbor.
Discussion—
1. E. L. Eggleston, Battle Creek.
2. B. R. Corbus, Grand Rapids.

3. "Surgery in the Management of Heart Disease"—E. C. Cutler, Professor of Surgery, Harvard Medical School, Boston, Mass.
4. "The Detection of Early Tuberculosis"—H. S. Willis, Northville, Michigan.
Discussion—
1. John Barnwell, University Hospital, Ann Arbor.
2. Salvatore Lojacono of Morgan Heights Sanatorium, Marquette.

Second Session

Thursday Afternoon, September 13, 1934

1. Nose and Throat Subject—(Title and Speaker to be furnished by Section on Rhinology and Otology).
2. "Pre-operative and Post-operative Treatment of Toxic Thyroid Patient"—E. C. Cutler, Boston, Mass.
3. "Hematuria"—William J. Butler, Grand Rapids.
4. Subject in Pediatrics—(Subject and Speaker to be furnished by the Section on Pediatrics).
5. Surgical Subject—(Title and Speaker to be furnished by the Section on Surgery).

Surgery

Chairman: EARL I. CARR, Lansing.
Secretary: H. K. SHAWAN, Detroit.

First Session—Wednesday, Sept. 12, 1934
9:00 A. M.

1. Chairman's Address—Earl I. Carr, Lansing.
2. "Clinical Abdominal Diagnosis"—Theron G. Yeomans, St. Joseph.
3. "Treatment of Facial Wounds Due to Automobile Accidents"—L. Claire Straith, Detroit.
Discussion—
Ferris Smith, Grand Rapids.
4. "Fracture of the Lower Extremity"—Peter A. Bendixen, Davenport, Iowa.
Discussion—
1. George J. Curry, Flint.
2. Clifford B. Brainard, Battle Creek.
5. "Clinical Pathological Conference"—10:45 A. M. —W. L. Hartman, Detroit.

Second Session—Thursday, Sept. 13, 1934
9:00 A. M.

1. "Lesions of the Esophagus"—Roy D. McClure, Detroit.
Discussion—
1. William A. Hudson, Detroit.
2. John Alexander, Ann Arbor.
2. "An Evaluation of Palliative Operations"—Frederick A. Coller, Ann Arbor.
Discussion—
1. Julius H. Powers, Saginaw.
2. Alexander J. MacKenzie, Port Huron.
3. "Peri-anal Suppuration as a Focus of Infection" —Louis J. Hirschman, Detroit.
Discussion—
1. Karl B. Brucker, Lansing.
2. G. M. Brown, Bay City.
4. "The Treatment of Cerebro-cranial Injuries"—Loyal Davis, Chicago.
Discussion—
1. Max M. Peet, Ann Arbor.
2. John J. Walch, Escanaba.
3. E. S. Gurdjian, Detroit.

Gynecology and Obstetrics

Chairman: HAROLD FURLONG, Pontiac.
Secretary: HAROLD MACK, Detroit.

First Session—Wednesday, Sept. 12, 1934
9:00 A. M.

1. Report of Committees on—
(a) Clinical Problems—Dr. Miller.
(b) Birth Certificates—Dr. Alles.
(c) Birth Control—Dr. Mack.
2. Chairman's Address.
3. "The Value of the Potter Type of Internal Podalic Version in the Management of Persistent Posterior Occiput Cases"—Morrell M. Jones, Pontiac.
4. "Abdominal Pregnancies"—Cleary N. Swanson, Detroit.
5. Subject to be announced—Joseph L. Baer, Chicago.
6. Recess and Discussion.
7. Adjourn for Address of President, Michigan State Medical Society.

Afternoon Session

Combined Section Meeting.

Second Session—Thursday, Sept. 13, 1934
9:00 A. M.

1. "Treatment of Trichomonas Vaginalis"—J. Campbell Smith, Detroit.
2. "Late Studies on Roentgenography of Pelvic Organs"—J. Duane Miller and Dr. Meness of Grand Rapids.
3. Paper by the Department of Obstetrics and Gynecology at the University of Michigan.
4. "Excessive Cigarette Smoking in Women and Its Effect upon Their Reproductive Activity"—Alexander M. Campbell, Grand Rapids.
5. Obstetrical Subject to be announced later.
6. Adjourn.
7. Round Table Discussion—Leader to be announced.
8. Election of Officers.

Afternoon Session

Combined Section Meeting.

Ophthalmology and Otolaryngology

Chairman: John R. Rogers, Grand Rapids.
Secretary: RALPH B. FAST, Kalamazoo.

First Session—Wednesday, Sept. 12, 1934
9:00 A. M.

OPHTHALMOLOGY

Section Clinic.

Second Session—Thursday, Sept. 13, 1934
9:00 A. M.

OTOLARYNGOLOGY

1. "Temporal Lobe Abscess of Otitic Origin"—Oliver B. McGillicuddy, Lansing.

2. "The Value of Prophylactic Methods in the Prevention of Common Colds"—Perrin Hamilton Long, Johns Hopkins Hospital.
3. "The Rhinological Management of the Allergic Individual"—James E. Croushore, Detroit Polyclinic, Detroit.
4. "Headache"—J. Milton Robb, Detroit.

Pediatrics

Chairman: W. E. COLLINS, Kalamazoo.
Secretary: EDGAR E. MARTMER, Detroit.

First Session—Wednesday, Sept. 12, 1934
9:00 A. M.

1. Address of Chairman—Ward Collins, Kalamazoo.
2. "How the Orthopedist Can Assist the Pediatrist"—C. E. Badgley, Ann Arbor.
3. "Vomiting in Infancy"—David J. Levy, Detroit.
   Discussion—
   1. Thomas Gordon, Grand Rapids.
   2. Henry Vanden Berg, Grand Rapids.

Second Session—Thursday, Sept. 13, 1934
9:00 A. M.

1. "Infantile Eczema"—George Van Rhee, Detroit.
   A discussion of the etiology, pathology, diagnosis and treatment of infantile eczema with particular attention to the differential diagnosis of infantile eczema, seborrheic dermatitis and erythroderma exfoliativa. Lantern slides.
2. "Pyelitis in Infancy and Childhood"—W. K. Rexford, Detroit.
   A review of a series of cases followed at the Children's Hospital of Michigan for the past three years. Anomalies of the urinary tract and other cystoscopic findings. Lantern slides.
3. "Sinus Disease in Childhood"—Ferris Smith, Grand Rapids.
   The incidence of sinus disease in children is greater than is generally recognized. It is particularly prevalent in Michigan. Dr. Smith's wide experience in the treatment of sinus disease in children makes this a very worth while paper.
4. "Conditions in Childhood Associated with Hypoglycemia"—W. McKim Marriott, Dean of Washington University, School of Medicine, St. Louis, Misouri.
   Discussion—
   Thomas B. Cooley, Detroit.

Dermatology and Syphilology

Chairman: ROBERT C. JAMIESON, Detroit.
Secretary: A. R. WOODBURNE, Grand Rapids.

First Session—Wednesday, Sept. 12, 1934
9:00 A. M.

1. Chairman's Address—R. C. Jamieson, Detroit.
2. "Skin Disease in Industry"—A. E. Schiller, Detroit.
3. "Immunological Aspects of Epidermophytosis"—L. W. Shaffer.
4. "Allergy in Dermatology"—M. B. Sulzberger, New York.

Second Session—Thursday, Sept. 13, 1934
9:00 A. M.

Presentation of Cases.

NOTES

1. Delegates will secure their credentials from their County Secretary and present them to the Credentials Committee at 9:00 A. M. on September 11.

2. Members will find it profitable to visit the Commercial and Scientific Exhibits.

3. Two evenings of entertainment will be provided by the Calhoun County profession.

4. Do not miss hearing our invited guest speakers.

PLAN TO ATTEND

EPOCHS IN SURGERY

(The American Journal of Surgery)

Students of world events and affairs tell that we are leaving a definite era. The curtain is descending on a human drama as clean cut as were the Elizabethan or Victorian times. For the most part this passing is concerned with social and economic phases of existence. Only the student of history or the observing man of medicine recognizes that surgery, too, is putting the finishing touches to another segment in the progress of civilization. Surgery changed with the advent of inhalation anesthesia. Another change began with the results of Pasteur's discoveries and their application by Lister. About 1890, the era of technical surgical methods began. Surgeons found a safe way to explore the abdomen, to enter the chest, to operate on the spinal cord and brain. Today an operation for an ectopic pregnancy occasions no comment, but prior to Lawson Tait's day no one ventured to enter the pelvis and correct this anatomical calamity. The things of common occurrence today were closed books to the surgeon of fifty years ago. Years from now the physician will read of this half century about ended. Names that are casual to present-day doctors of medicine will then stand forth as those of the great pioneers.

CONTRIBUTED ARTICLES

ACUTE PERFORATED PEPTIC ULCER*

SUMMARY OF 211 CASES OF ACUTE PERFORATED GASTRIC AND DUODENAL ULCERS

H. K. SHAWAN, M.D.†
DETROIT, MICHIGAN

Perforated gastric and duodenal ulcers are usually described as being of three varieties —acute, subacute and chronic. The present report deals with acute perforations only and is confined to those cases where upon opening the abdomen gastro-duodenal contents were found to be freely escaping into the abdominal cavity. Those perforations in which at operation the ulcer was found to be sealed over (subacute) or in which a protective barrier of adhesions confined the escaped fluid or pus to a restricted area (chronic) are omitted. During twelve and one-half years preceding July 1, 1932, 211 consecutive cases of freely leaking acutely perforated gastric and duodenal ulcers have been operated upon at the Receiving Hospital of Detroit. The first ten in this series have been reported before and are included herein.[1]

GENERAL FINDINGS

Of the total number of 211 cases operated upon, all but four were men, a proportion slightly greater than 50 to 1. A similar preponderance of perforated ulcers occurring among males have been reported by Dineen[2] (138 in 142 cases), Hinton[3] (103 in 105 cases), Gilmour and Saint[4] (58 in 64), White and Patterson[5] (less than 3 per cent females), and others. Although not included in this report, a review of our cases shows a relative increase in subacute and chronic perforated ulcers in women.

The average age was slightly over 37 years. Slightly more than 87 per cent occured in patients between the ages of twenty and fifty years. The four youngest in the series were all nineteen and the two oldest were respectively 60 and 70 years of age. As also noted by Luff[6] there was a decided drop in the occurrence of perforated gastric and duodenal ulcers after the age of 50 years. While perforated gastric and duodenal ulcers have been reported at both extremes of the span of life our findings and average age agree with those reported by others (Brown,[7] Gilmour and Saint,[4] etc.).

Observations concerning occupation were gathered. About one-fourth had no occupation and slightly more than one-fourth were classed as laborers. Closer analysis showed that a very few had any trade or steady employment, a condition which must be considered in evaluating this particular group herein reported. Turner[8] states somewhat as follows: "In emergencies the poor are really the better off for with them there is no incentive for delay. They are taken to the hospital promptly, and are operated upon with little ado and most excellent results. The better-to-do is usually less fortunate as quite unnecessary consultations, visits of relatives, arrangements of business affairs, fritter away much valuable time. Then the operation and convalescence are conducted in an atmosphere of apprehension and suspense which ill assorts with smooth recovery." Granting Turner's statement to be correct in the main, other factors to be considered later in this report under the heading of predisposing factors may present another less satisfactory aspect.

Nothing definite was determined from the study of nationality. Slightly over one-half (108) cases were white Americans. One was American-Indian. Twenty-nine were American negroes. The remainder were scattered among many races. Not included but recently operated upon is one Chinese. We can only state from our observations that no nationality seem to be immune from perforated ulcers.

Most reports show an increase in ulcer symptoms and ulcer perforations during the

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changeable weather in Spring and Fall. In this series more perforations occurred in the months of July (27 cases) and May (24 cases) and fails to confirm the usual observation that ulcer perforation is to some extent seasonal.

No multiple perforations were encountered. One patient perforated twice and another was operated for three perforations in a four-year period.

None presented any brain lesion (Cushing)[9] either clinically or at post-mortem.

INCREASE IN OCCURRENCE OF PERFORATION

Whether or not ulcers of the stomach and duodenum are on the increase is an undecided question. That perforations have steadily increased in occurrence has been found in the experience of Zukschwerdt and Eck,[10] Hinton[3] and Semb.[11] Bager[12] reports that perforations are more frequent but the increase has been noted only among males. I was unable to recall a single case in Lakeside Hospital, Cleveland, Ohio, during fifty-two months following March, 1909. This observation has been corroborated by Dr. W. B. Rogers.[13] Furthermore, previous to 1920, no case of acute perforated ulcer is found on the Detroit Receiving Hospital register. Comparing the total number of operations with the number of operations performed on ruptured gastric and duodenal ulcers shows the latter to have gradually doubled and then trebled in this hospital during the past ten years.

PREVIOUS HISTORY

Investigation of previous history of gastric disturbance shows these cases to be divided into two groups. In 177 cases (83.9 per cent) a history of dyspepsia ranging from one month to thirty years (average 3½ years) was obtained. Similar reports of a long previous history of gastric troubles frequently have been reported. Deaver[14] found 90 per cent to have had a previous ulcer history. A second small group (127 cases, 12.8 per cent) denied any previous stomach trouble. In one-fourth of Judine's[15] cases, perforation was the first indication of the disease. Too much dependence was not placed on statements made by a patient suffering the intense pain of perforation. However, at operation, a perforation was found in a calloused, hard chronic ulcer in the first group and a small pinpoint rupture in a soft walled acute ulcerating process in the second. Such findings have been commented upon by Shawan and Vale[1] and others.

The patients were questioned as to what, if any, previous treatment had been received for their gastric distress previous to operation. Of the 211 cases, the charts contain no mention of any previous care in 107 cases. Of the remainder, 11 had no treatment, 71 on their own initiative had taken soda, other drugs or had been careful of their diet while 22 had had some sort of medical care from irregular to definitely supervised attention. One perforated while on anti-ulcer regime in this Hospital and several perforated while under treatment, admission to the hospital having been advised. Blackford and Baker[16] state acute perforation of peptic ulcer almost never occurs when ulcer has been previously diagnosed and proper treatment instituted. However, Hinton[17] in discussing Dineen's paper before the New York Academy of Surgery reports five perforations under medical treatment at Bellevue Hospital.

ETIOLOGY

Some of the predisposing factors to perforation were hard to properly evaluate. Nearly all of the cases had focal infections, bad teeth or previous operations for inflammatory diseases within the abdomen. Less than 15 per cent gave evidence of syphilis. Many were careless about diet, habits and health matters. The majority used tobacco in one form or another. Meals were irregular with many. The diet at times was meagre and at other times was over abundant. In many instances ingestion of a large quantity of fluid, not necessarily strongly alcoholic, but of the carbonated or home brew beer variety, was noticeable just before the acute onset. This was especially frequent in the summer months when dietary abuses are more common in this climate. Trauma due to straining or actual direct injury was found in eight cases. Magnant[18] in reporting a case of perforation of an ulcer of the stomach after contusion of the abdominal wall states the literature records only nine such cases.

DIAGNOSIS

It is agreed that the initial symptom is sudden extremely severe pain in the epigastrium. Terms such as excruciating, annihilating, unendurable, prostrating have been used to describe what has also been

termed a catastrophe. Moynihan has aptly stated "the patient was struck motionless." Nevertheless there is a small minority in which certain prodromal symptoms are recorded and in which the onset is less abrupt. Three in this series had premonitory distress and one of these had vomiting of blood before the pain appeared. Pain, once established, remained a constant symptom in all but 8 per cent. Subsequently, pain in the latter became intermittent or ceased temporarily. In all of these there was found either a minute perforation or small opening in a soft walled recent ulcer temporarily plugged with mucosa or food particles.

Rehfuss[19] states that in his experience perforation is usually associated with vomiting. He quotes Wilmoth, maintaining that absence of vomiting is a significant symptom. Judine[15] likewise reports vomiting to be rare. In this series 42 per cent vomited once or twice and 20 per cent had no vomiting. Three patients vomited continuously.

The clinical findings are most important in arriving at a diagnosis. Moynihan[20] has emphasized the extreme degree of prostration and the tense rigidity of the whole body. While such is usually the case, nevertheless intermittent rigidity of the abdomen occurred in 4.5 per cent of our cases. Obliteration of liver dullness occurred in about 23 per cent of this series. Hyperresonance over the liver indicates either a large amount of gas escaping immediately with perforation, a long interval between perforation and the discovery of tympany, or distention of some other intra-abdominal hollow organ. True shock was rarely seen except in late cases gradually taking on the appearance of peritonitis.

A most important finding in our experience has been that upper abdominal muscles remain continuously splinted in subdiaphragmatic conditions, and that at the end of expiration they relax momentarily with those above the diaphragm. (Vale.[21])

It is generally agreed that shortly after perforation, the temperature, pulse, respiration, leukocyte count and polymorphonuclear leukocytes remain about normal and that all are elevated with the passing hours. In this series the temperature on admission was below 99 degrees in 60 per cent; the pulse rate below 100 in 70 per cent; the average leukocyte count in 168 cases was about 13,000 and in the same number of polymorphonuclears averaged about 80 per cent. Singer and Vaughan[22] have emphasized the value of fluoroscopic and x-ray examinations of the abdomen for the presence of air. They state that by these means a correct diagnosis was arrived at in 86 per cent of the cases proven by laparotomy. In spite of the fact that 85 per cent of these cases were correctly diagnosed clinically on admission we have, especially of late, found fluoroscopical examination to facilitate diagnosis in questionable cases. Resort to flat x-ray plate examination will often differentiate intestinal obstruction from perforation. In attaining a prompt diagnosis the history and clinical findings were found to be of far greater value in the time permitted than all laboratory investigations.

In the differential diagnosis several other acute abdominal emergencies have to be considered. Chief among these are gall stone colic, acute pancreatitis and the obstructive type of appendicitis. The history and fulminating course of the last together with the sudden remission of pain with rupture make this variety of acute appendicitis a problem to be reckoned with. Moynihan has emphasized the continual restlessness with gall stone colic and the prostration and continual rigidity in pancreatitis and acute ruptured ulcer. Shock and continuous vomiting usually point to pancreatitis. Whipple[23] in discussing the differential diagnosis of intestinal obstruction believes the only important non-operative lesions that should be ruled out are pnuemonia, tabetic crisis and coronary or mesenteric thrombosis. Careful examination may rule out pneumonia, arteriosclerosis and signs of endocarditis should suggest coronary embolus and history and physical signs will usually eliminate tabes. The same statement holds with ruptured ulcers. If these three conditions complicating acute perforated ulcers are eliminated, no time should be wasted in making a differential diagnosis when everything points to an acute abdominal lesion requiring immediate operative treatment.

TABLE I. LOCATION IN 211 CASES OF PERFORATED ULCER

LOCATION	RECOVERED	DIED	TOTAL	PER CENT DIED
Duodenal	97	27	124	26.6
Pyloric	26	13	39	33.0
Gastric	36	11	47	23.3
Gastro-jejunal	0	1	1	100.0
	159	52	211	

The majority of perforated ulcers in our series occurred in the duodenum (Table I). Luff[6] in his compilation masses pyloric and duodenal ulcers together because the results from operative treatment were so similar. In many of our cases the anatomy was so distorted by the pathology presented that we were unable to differentiate between pyloric and duodenal ulcers. Of the cases of perforation collected from Swedish hospital by Badger,[12] two-thirds were gastric and one-third duodenal. From the anatomical standpoint, however, one might rather class the pyloric with the gastric perforations, thus changing the frequency as well as the mortality percentages. If we accept this observation, it seems that corrected reports are gradually showing more gastric perforations than previously supposed.

All reports show a direct increase in the mortality as compared with the time elapsing between the ocurrence of the acute perforation and the operative treatment. Turner[8] states the time factor has everything to do with the results in these great emergencies but believes that cases should be classified according to the extent of the pathological damage which has occurred up to the time of operation, and not on the number of hours which have elapsed since the onset of the attack. In this series the mortality rate increased directly with the size of the perforation and the amount and type of escaped gastroduodenal contents. The mortality in 160 cases in this series of 211 cases operated upon under 12 hours was 13.1 per cent. In 51 cases operated upon after 12 hours the mortality was 56.8 per cent.

TABLE II. AGE INCIDENCE AT TIME OF OPERATION AND DEATH

AGE	NUMBER	PERCENTAGE	NUMBER DIED	PERCENTAGE AGE DIED
Under 20 (All 19)	4	.89	0	00.00
20-30	59	27.96	14	23.73
30-40	76	36.01	19	25.00
40-50	49	23.22	12	24.49
50-60	21	9.95	5	23.81
60-70	2	.9	2	50.00

The incidence of deaths with reference to the various decades was investigated. It was found that between the third and sixth decades there was very little variation in the mortality percentage (Table II). Williams and Walsh[24] likewise found no apparent relation between age and prognosis.

The mortality in the entire series was 24.22 per cent. Of these 36 per cent died within the first twenty-four hours. It seems reasonable to ascribe these deaths to the severity of the attack, to operative shock, to anesthesia or, most likely, to a combination of many factors. The causes of death of the remaining two-thirds were found to be peritonitis, subsequent complications chiefly cardio-respiratory and following secondary operations. Six cases succumbed after secondary operations for incisional hernia, intestinal fistula, empyema, pelvic abscess and similar postoperative complications. Our findings agree with those of Fleming[25] who emphasized the fact that acute diffuse peritonitis is the commonest fatal complication. From postmortem examination we conclude that peritonitis was the chief or only determinable cause of death in three-fifths of the cases in this series.

It is somewhat difficult to evaluate the rôle of anesthesia in this series. Although used in but few cases and these in the more critical condition, the mortality was overwhelmingly highest when the least nocuous anesthetic agents were employed. While our experience has been unsatisfactory with local anesthetic, Watson[26] prefers to use it. Judine[15] formally used local, but states that he has better results with splanchnic anesthesia. Of those receiving ether or gas-ether the mortality was 28 and 26 per cent, respectively. Less than 12 per cent of those receiving spinal anesthesia died.

During the more recent years in this series, spinal anesthesia has become the anesthetic of choice for operations on perforated gastric and duodenal ulcers. The marked reduction in the mortality records of the Receiving Hospital with the use of spinal anesthesia in acute surgical emergencies has been commented upon by Krieg.[27]

SURGICAL PROCEDURES

In order of their magnitude, the various operative procedures which are used in the treatment of acute perforated ulcer may be summarized under six headings: 1. Drainage alone; 2. Simple closure; 3. Excision ulcer and closure; 4. Excision ulcer and pyloroplasty; 5. Excision ulcer and closure plus excision anterior half pyloric sphincter muscle; 6. Closure with added (primary) gastro-jejunostomy; 7. Partial gastroduodenal resection (Table III).

1. *Drainage Alone.* Simple abdominal

drainage without any operative treatment of the ulcer has been advocated for the severely sick patient by Morris[28] and Warbasse.[29] This operation can be done under local anesthesia with the patient in his bed. Such a simple procedure may save those in extremis and might, by draining off excess intra-abdominal fluid, allow approximation of the structures near the perforation and promote sealing over by adhesions. While abdominal drainage alone was not employed in any of this series of acute cases we have used it with satisfaction in subacute perforations.

2. *Simple Closure.* Most surgeons agree that immediate closure of the perforated lesion is the prime essential in the surgical treatment. Guthrie[30] published the results of a questionnaire answered by a large number of American surgeons. By far the greater number were conservative and employed only simple closure of the perforated ulcer. Most surgeons believe that complications following simple suture are rare and that they are best cared for at a future time when the dangers of spreading peritonitis are remote. Simple closure was performed in three-quarters (155) of the cases in this series.

3. *Excision of the Ulcer and Closure.* In this operative procedure, a small amount of ulcerated tissue adjacent to the perforation was excised. It has the advantage of removing the diseased area and allowing the closing sutures to be placed in healthy tissues. While operating time was but slightly increased, the mortality percentage in this series was surprisingly increased (28.57 per cent).

4. *Excision Ulcer and Closure by Pyloroplasty.* This operation, advocated by Dowden[31] has the advantages of: 1. Removing the ulcerated area; 2. Increasing the size of the lumen by lengthwise excision and crosswise suture; 3. Allowing the placement of sutures in healthy tissue; 4. Closure with structures coupled as normal; 5. Stopping pylorospasm; 6. Permitting reflux flow of bile through the pylorus. The main difficulty in pyloroplasty is encountered through lack of mobility of the duodenum. In this series 3 were done by the Horsley method and 3 by the Judd method with no deaths.

5. *Excision Ulcer and Closure with Added Anterior Hemisphinterectomy.* This procedure can be used for perforated ulcers several centimeters distal to the pyloric ring. Deaver,[14] long an advocate of added gastroenterostomy, later advised, in selected cases, excision and closure of the ulcer plus extramucosal excision of the anterior half of the pyloric sphincter. He emphasized the abatement of pylorospasm. While not used in any of the cases in this series, its employment is not contra-indicated in proper instances.

6. *Closure with Gastroenterostomy.* This treatment is advanced for cases in which primary closure has been unsatisfactory because of insecure suture or strictured lumen. It allows drainage of stomach contents as well as entrance of alkaline bile to acid gastric contents. In many cases, the results have been satisfactory. In other cases, the operation has been prolonged, the spread of peritonitis increased and subsequent marginal ulcers have occurred. It is rarely employed with the advanced or severely sick. Used shortly after perforation, especially of an old chronic obstructive ulcer in an adult with well-developed, pyloric obstruction, the immediate and subsequent results are emminently satisfactory. As a routine procedure, it condemns itself. Closure of the perforation with added gastrojejunostomy was employed 22 times with a mortality rate of 22.72 per cent.

7. *Partial Resection.* Certain continental and an occasional American surgeon have leaned toward a more radical procedure, such as gastroduodenectomy, in order to avoid the occasional late complication resulting from any of the previously mentioned procedures. In certain cases this procedure is possible but rarely will the condition of the patient following perforation permit of such radical treatment. In this series primary gastro-duodenal resection was not done.

Except in the rare case of gross contamination of the peritoneal cavity was irrigation of the abdominal cavity done. Buerkle de la Camp[32] used extensive irrigation with Ringer's solution and drainage. Bager[12] irrigates the abdominal cavity and closes without drainage. However, a study of the total number of cases reported by Bager fails to show that the results were improved by irrigation. Fleming[25] believes that irrigation is incorrect and obsolete.

Drainage was employed in 188 cases, not used in 15 and not recorded in 8 cases. Of the 15 cases not drained, one died. Bacteriological examination of the free fluid in the abdominal cavity was of no value in decid-

ing the necessity of drainage. Turner[8] states "the provision of a drain tract need never do harm, but to do without it may cause a fatality."

In this series the operative treatment was individualized. The condition of the patient, the extent of the pathology and the degree of obstruction indicated the operative technic. More and more the tendency was to do nothing more than absolutely necessary. Additional operative procedures were left for a subsequent time and then carried out only when indicated. The main indication in the presence of a perforation other than preventing further leakage was to combat the attending peritonitis. As Singer and Vaughan[23] have stated, "any measure which serves no immediate purpose and which adds to the length of the operation or enhances the spread of the peritoneal infection seems hardly justifiable."

TABLE III. TYPE OF OPERATION EMPLOYED

TYPE OF OPERATION	NUMBER OPERATED	NUMBER DIED	PERCENTAGE DIED
Simple Closure	155	39	25.16
Excision Ulcer and Closure	28	8	28.57
Closure with Gastro-Enterostomy	22	5	22.72
Excision Ulcer and Pyloroplasty	6	0	00.00

POSTOPERATIVE CARE

Careful attention to the postoperative treatment is most important. As soon as the patient reacted he was placed in the sitting position. Morphine was used as indicated. Saline and glucose were used liberally by intravenous and subcutaneous routes (1,000 c.c. every 8 hours) for four or five days. Then, hot water and hot sugared tea were given by mouth because they immediately pass from the stomach into the intestine. Todd,[33] by fluoroscopic examination has shown that cold fluids cause a pylorospasm, lasting from 15 to 30 minutes. Early feeding by rectum and by mouth was avoided as it stimulates early peristalsis. The postoperative dietary treatment as advised by Dineen[2] commends itself.

CONCLUSIONS

1. In reporting 211 cases, it appears that perforations of gastric and duodenal ulcers are gradually increasing in number; by far most are men of all nationalities between 20 and 50 years.

2. The great majority of perforating ulcers gave a previous history of chronic ulcer (84 per cent).

3. The mortality increases with the pathology presented. Size of the opening, the amount and toxicity of the peritoneal soiling and the time allowed to elapse between rupture and operative treatment dominate the results.

4. The diagnosis is essentially clinical, the observed findings being of far greater value in the time permitted than all laboratory examinations with the exception of x-ray.

5. Spinal anesthesia is the most satisfactory anesthetic, as to mortality and morbidity.

6. The mortality in 160 of these operated upon under 12 hours was 13.1 per cent. In 51 cases operated upon after 12 hours the mortality was 56.8 per cent. The total operative mortality in this list of 211 cases was 24.64 per cent.

7. While the type of operative treatment employed was individualized the latter tendency has been to lessen the magnitude of the procedure.

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PERIARTERITIS NODOSA: WITH CASE REPORTS

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Since Kussmaul and Maier[1] in 1866 drew attention to periarteritis nodosa, about 150 cases[2] have been described. Troutman[3] saw in the Pathological Museum in Vienna a specimen showing aneurysms localized to the mesenteric artery. This was described and named by Rokitansky as Multiple Aneurysmata some years before it was recognized as a part of the picture of periarteritis nodosa. During the half century following Kussmaul and Maier, 37 more cases were recorded, all but five of them in Europe. In the last few years the number of cases recognized in this country has markedly increased, though it still appears to be rare here as compared to Europe. As has been brought out by many workers, the disease is undoubtedly of relatively frequent occurrence, though often unrecognized. In the autopsy service at the University Hospital, Ann Arbor, Michigan, two cases of periarteritis nodosa were seen within a period of ten months.

CASE REPORTS

Case I. J. B., a 46 year old white male factory worker, was admitted to the Medical Service complaining of pain in the epigastrium, weakness, and loss of weight. He had been in good health until six months previous to admission, at which time there was an insidious onset of pain in both hip joints. This became so severe that he could not walk without crutches. As this pain gradually subsided, his left knee became swollen and tender, and there was aching of the joint, severe enough to keep him awake at night. His left ankle became similarly involved and he complained of recurrent pains through both lower extremities. He also developed some parasthesia in his legs. Five weeks previous to admission the patient suffered a dull pain in the mid-epigastric region. It was constantly present, not relieved by soda, and often aggravated by food. He had always been constipated, and on one occasion, just previous to admission, he had noticed tarry stools. He had become progressively weaker, losing 25 pounds in weight since the onset of his illness.

There was nothing of significance in the past history. The patient's father died at the age of 66 years of heart disease; his mother died at the age of 68 years of apoplexy.

On physical examination, the patient was slightly short of breath, but not truly dyspneic, and not cyanotic. He was complaining of pain in the epigastrium, and of an aching sensation in his feet. The heart was not enlarged to percussion. The first sound at the apex was split; the aortic second sound was markedly accentuated. The peripheral vessels were tortuous and sclerotic, and the blood pressure was 186/130. The abdomen was somewhat tense and distended and there was considerable midepigastric tenderness, but no true muscle spasm. There were a few palpable lymphnodes in the neck, axillæ, and inguinal regions. Examination of the fundi showed an advanced arteriosclerosis of the retinal vessels. There was hemorrhage and exudate within the retina.

Blood examination revealed 4,100,000 red blood cells per c.mm., 14,000 white blood cells, and a normal differential count. The urine contain albumin (four plus), 10 to 15 red blood cells, 5 to 8 white blood cells, and one or two granular casts per high power field. The stools were negative except for a positive benzidine reaction. Kidney concentration tests showed fixation of the specific gravity of the urine at 1.012. Non-protein nitrogen was 34.2 mgm. per 100 c.c. of blood. Phenolsulphonephthalein tests showed an excretion of 25 per cent of the dye in two hours. The Kahn test was negative. Results of gastric analyses were normal. X-ray films of the gastrointestinal tract revealed no lesion. Electrocardiograms were repeatedly regarded as normal.

The patient was placed on a "nephritic" diet, was given euphyllin, 0.1 gram, *tres in diem,* and codeine and morphine sulphate as needed. He did not improve. Blood pressure remained between 180 to 200 systolic, and 130 to 145 diastolic. Several days after admission he complained of pain in the right side of his chest, was dyspneic, had a slight cough, and raised blood-tinged sputum. There was no fever. A friction rub was heard anteriorly. The non-protein nitrogen of the blood gradually rose to 78 mgm. per 100 c.c., the patient became irrational, and expired 20 days after admission to the hospital.

Autopsy showed the body, which measured 169 cm. in length, to belong to the asthenic constitutional type. The face was slightly icteric. There was a moderate pitting edema of both ankles. The lungs were moderately congested and edematous, but showed no other pathology. The heart was slightly enlarged, weighing 400 gm. Scattered over the surface of the heart, and especially in the region of the atrioventricular junction, there were many small yellowish white nodules, of rubbery consistency. They protruded above the surface of the heart, giving it a patchy varicose appearance. Section of these nodules revealed an artery to be present in each, with the lumen markedly reduced and the periarterial tissues increased. A few of the nodules had a purplish color. Cross section of these revealed an aneurysmal dilatation, filled with clotted blood. There were many small areas of fibrosis in the heart wall, all of them well healed. The larger coronary arteries revealed only early atherosclerotic changes, not being involved in the process described above.

In the abdomen the smaller arteries about the duodenum and along the lesser curvature of the stomach, in the mesentery, and at the hilus of the spleen, as well as the branches of the hepatic artery, had many small yellowish white nodules, several of which were almost as large as peas. Each nodule contained a blood vessel whose lumen was diminished, with the arterial wall and periarterial tissues markedly thickened and indurated. As in the heart, several of these nodules had a purplish color, appar-

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ently due to the thrombosed blood contained within the localized arterial dilatations. The kidneys were small. When the fibrous capsule, which was markedly adherent, was stripped away, the surface of the kidney was mottled with irregular plaques having a bright lemon color. These plaques, of varying size, were slightly raised above the surface. Section of the kidneys revealed many nodules of the type described elsewhere in the body. There were several circular purplish areas, measuring about 7 mm. in diameter, which apparently were tremendously dilated arcuate arteries containing thrombi.

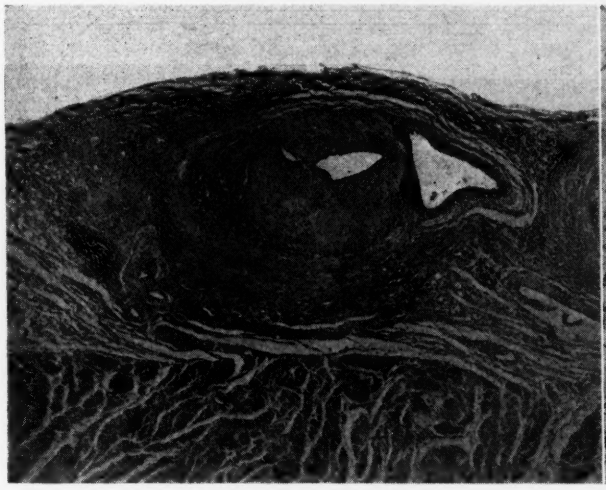

Fig. 1. Case I. Coronary artery showing an eccentric fibrosis of all coats with an active inflammatory infiltration. Late stage in the evolution of the lesion of periarteritis nodosa with organization of the thrombus in the aneurysm. Hemalum and eosin. X 65.

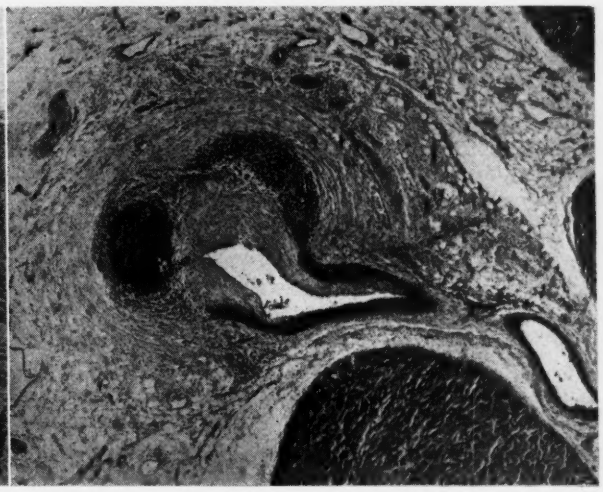

Fig. 2. Case II. Coronary artery showing the eccentric nodular formation characteristic of periarteritis nodosa. The media has ruptured and an aneurysm has been produced. In the aneurysmal sac a portion of the thrombus remains unorganized. This is a somewhat earlier lesion than is shown in Figure 1. Hemalum and eosin. X 65.

On *microscopical examination* the medium and small sized arteries showed the changes of periarteritis nodosa in all stages. The lesions were most marked in the heart, kidneys, pancreas, stomach, esophagus, and in the mesenteric and hepatic arteries. Some of the larger arteries showed only sclerosis, while many of the smaller ones showed an obliterating endarteritis with thrombosis. Thrombi showing all stages of organization were present; many of them were completely replaced by a dense scar tissue; others were organized and fenestrated. There were localized areas of marked thickening of the intima, occasional defects in the intima and media, and perivascular inflammatory infiltrations. In the involved organs, particularly the kidneys, infarcts in all stages were present. Even the vessel walls of the skin were fibrosed and thickened. There was a fibrosis dermis extending into the subcutaneous tissue, and suggesting the appearance of scleroderma. The epidermis and skin structures were atrophic. The lungs showed no evidence of arterial disease.

Pathological diagnosis (Dr. A. S. Warthin): "Diffuse obliterating thromboarteritis with periarteritis nodosa in the fourth stage (coronary, mesenteric, pancreatic, renal, periadrenal, spermatic, and subcutaneous arteries). Multiple infarctions of kidneys and myocardium. Organizing unresolved croupous pneumonia. Active latent syphilis of aorta, liver, adrenals, and testes. Early hepatic cirrhosis. Chronic passive congestion of spleen with early fibrosis. Chronic interstitial nephritis with multiple infarctions. Chronic atrophic catarrhal gastroenteritis. Colloid goiter. Hyperplastic thymus with fibrosis. Old appendectomy. Marked serous atrophy of adipose tissue with fibrosis and myxomatous change. Fibrosis of skin resembling scleroderma. Multiple small ulcerations of esophagus. Slight old leptomeningitis. Edema, congestion, and parenchymatous degeneration of all organs."

Case II. J. L. B., a 16 year old colored male, was first seen in the Otology Clinic complaining of swelling of the right side of the face. The swelling, associated with moderate pain, had not changed appreciably during the three months since its onset. During the past few weeks he had had a yellow discharge from his nose, occasionally containing small spicules of bone. Two years previous to admission, the patient had mumps. At that time his right knee was swollen and painful, and for some time he walked only with great difficulty. About this time he had a swelling of the right inguinal region, from which there was a yellowish discharge. These processes gradually subsided. There was no history of syphilis, though patient was exposed during the past year.

The mother was living and well. The father died of influenza. There were three siblings, all living and well.

Physical examination revealed an ulceration of the soft palate which extended back into the nasopharynx. The border of this ulcerated area was punched out, and there was a fetid odor. There were a few palpable lymphnodes in the epitrochlear, axillary and inguinal regions. The cranial bosses were prominent, the scapulæ were slightly concave along the vertebral border, and there was a slight anterior bowing of the tibiæ.

The patient was regarded as suffering from tertiary syphilis: a leutic osteomyelitis of the maxillæ and palate. Subsequent report on Kahn test of the blood was positive (four plus). The spinal fluid Kahn reaction was negative, as was the colloidal gold curve. During the ensuing four months the patient was given intensive bismuth and arsphenamine antileutic therapy. Two months later he was again seen in the Dermatology Clinic, and was advised to have further treatment.

Our next contact with this patient was seven months later when the coroner ordered an autopsy on his body. He had apparently been well until eight hours before his death. He had complained

of headache, vomited twice, had what was described as a convulsion, and become comatose.

At *autopsy* the spinal cord appeared normal. There was a moderate edema of the brain and meninges, but no other lesion of the central nervous system. There were many dense adhesions over the anterolateral aspect of the right lung. The lungs were firm, heavier than normal, and contained many patchy areas of lobular pneumonia, in part hemorrhagic. The heart was somewhat enlarged, weighing 430 gm. The cecum was firmly adherent to the anterior abdominal wall. The left kidney was absent from its normal position. In the right half of the abdomen there was an irregular mass, representing both kidneys. The upper half of this had the contour of a normal kidney, whereas the lower portion was bulbous. Two ureters emerged from a single pelvis. The aorta showed a well-marked atherosclerosis.

On *microscopical examination* the small arteries in practically all organs examined, including the heart, kidneys, liver, adrenals, gastrointestinal tract and epididymis, showed changes leading to complete obliteration. This process was characterized by swelling and edema of the media with localized areas of necrosis, heavy cellular infiltrations, and areas showing productive intimitis, small localized aneurysmal dilatations, and productive nodular formations in the adventitia. Some of the arteries were completely obliterated, with infarctions resulting. Protracted search for spirochetes by appropriate staining methods was without result.

Pathological diagnosis (Dr. C. V. Weller): "Generalized arterial disease. Periarteritis nodosa. Terminal acute purulent bronchitis and hemorrhagic purulent lobular pneumonia. Pulmonary congestion, hemorrhage, and edema. Anomalous kidneys (fused kidneys lying on right side). Renal insufficiency. Uremia (?). Acute passive congestion and parenchymatous degeneration of all organs."

DEFINITION

Periarteritis nodosa is an acute inflammatory disease, of small and medium sized blood vessels, and of unknown etiology. It is characterized by necrosis of the media with deposition of fibrin; secondarily there follow cellular infiltration and granulation tissue formation, with varying degrees of intimal proliferation. Eventually, aneurysmal dilatation, rupture of the aneurysm, or thrombosis of the diseased artery may occur. Death may be the result of hemorrhage following the rupture of an aneurysm, or it may follow infarction of essential organs through the occlusion of blood vessels.

ETIOLOGY

The disease is regarded by practically all observers as a form of sepsis. Syphilis was early advanced as the etiological factor. But as the disease was more frequently recognized, syphilis came to have less and less significance as the causative agent. Evidences of syphilis in patients dying of periarteritis nodosa were no more frequent than in patients dying from all other causes. Among the many factors pointing away from syphilis have been the failure to demonstrate spirochetes in the arterial lesions, the freedom of the cerebral arteries from periarteritis nodosa, whereas syphilis so often attacks them, the absence of gummas in periarteritis nodosa, the rapid course of the disease, often proving fatal in six to twelve weeks, and the evidence brought forth by experimental workers in producing periarteritis nodosa in animals in which syphilis is unknown.

That periarteritis nodosa has a specific causative agent and is a disease *sui generis* cannot be stated at the present time. No specific micro-organism has ever been demonstrated, though much of the evidence is in favor of it. Von Haun[4] produced the disease in guinea pigs by the inoculation of a patient's blood and concluded that the disease is a specific infection. Others have not been successful in reproducing this work. Harris and Friedrichs[5] succeeded in producing the disease in experimental animals. Spiro[6] does not regard it as a specific disease, but only as a form of post-infectious mesarteritis, resulting from various infections. Wiesel[7] and Wiesner[8] have each found changes, especially marked in the media, in arteries in various acute infectious diseases. Gruber[9] maintained that the arterial lesions are an allergic phenomenon, resulting from different infectious agents. On the other hand, favoring the specific infectious theory is the rarity of these lesions in spite of the many acute infections, and the uniformity of the pathology once the lesions are established. At present it is best to state only that this is a disease appearing as an infection, possibly of specific etiology, or possibly a stage in one of the ordinary infectious diseases.

INCIDENCE

As previously stated, periarteritis nodosa is a relatively rare disease, the total number of reported cases being about 150. In a necropsy series of 2,035 cases at the Peter Bent Brigham Hospital, only two examples of periarteritis nodosa were seen.[10] The disease occurs five times as frequently in males as in females.[11] While 70 per cent of the cases occur between the ages of 10 and 40 years,[12] authentic cases have been reported at both extremes of life. In none of the studied cases was it possible to show a family relationship or predisposition, nor

was the disease related in any apparent manner to the patient's occupation.

PATHOGENESIS

The changes in periarteritis nodosa occur only in the arteries which measure three to five millimeters in diameter or smaller, roughly equivalent in size to the normal coronary artery. Veins and capillaries are not affected. The nodules vary in size from just visible to the size of a large pea. They are yellow-white to white and moderately firm. Their consistency apparently increases with the age of the process. The nodule is usually restricted to one side of the artery, often accompanied by an associated occlusion. The larger nodules, exceeding the size of a hazel nut, are usually aneurysmal dilatations, and are almost always thrombosed.

The earliest changes suggest that the affecting agent probably enters the arterial wall via the *vasa vasorum,* or through the perivascular lymphatics, and affects primarily the media, and later the intima and adventitia. Long before the patient has symptoms, there is swelling of the muscle cells of the media with loss of nuclei. A marked edema develops, accompanied by a fibrinous exudate beneath the intima. The entire thickness of the media may become necrotic. During this stage there is an infiltration of leukocytes, plasma cells, and eosinophils into the necrotic areas. The adventitia is not yet involved. But as the disease progresses, the infiltration of cells becomes heavy, extending into both intima and adventitia. The elastica interna becomes fragmented. With the extension of the exudate into the intima, fibrin threads may penetrate into the lumen and leukocytes collect about them. A reactive intimal proliferation results, eventually leading to stenosis or occlusion of the vessel. The active process is now at its height, with thrombosis of the vessel and secondary infarction of the organ commonly occurring. Likewise, rupture of the blood vessel may occur at this time.

If the patient survives, the process of repair begins. As the polymorphonuclear cells decrease, the lymphocytes and plasma cells increase. The necrotic media, and the injured portion of the adventitia and intima, are gradually replaced by a cellular granulation tissue, rich in fibroblasts and in newformed blood vessels. Intimal proliferation is usually marked when the changes in the media are not severe. If a thrombus is present, it may be organized and canalized. The intimal thickening is most marked at the site of the lesion, and spreads diffusely beyond it, so that a thickened intima may overlie media that has not been affected.

In those arteries in which the process goes on to healing, this new-formed connective tissue is changed into scar tissue. Then, heavy scar tissue remains as the sole evidence of the severity of the infection, and may lead to nodular thickenings. Relatively large blood vessels may be reduced to small channels. Contracted kidneys, myocardial scars, muscle atrophy, and nerve degeneration are to be expected.

SYMPTOMS

There is usually a sudden onset, characterized by a mild sepsis and scattered local manifestations of vascular disease. Fever is moderate, continuous, and usually present from the very onset. In general, the patient will complain of a progressive weakness, pains in the muscles and joints, abdominal pains, polyneuritis, anesthesia and paresthesia, tachycardia, and symptoms of renal insufficiency. The white blood count may range from 10,000 to 30,000 cells per c.mm. A progressive anemia may be expected.

The symptoms depend on the organs involved, and on the stage of the lesions in the vessel wall. As to frequency, the kidneys, heart, liver, and gastrointestinal tract are involved in the order named; and the disease has been classified according to the outstanding organ involvement. The renal type is characterized by hypertension, hematuria, albuminuria, and progressive renal insufficiency. The cardiac type shows symptoms of myocardial disease, due to narrowing and occlusion of the smaller coronary arteries. The abdominal type has attacks of recurrent abdominal pain, accompanied by a rise in temperature and leukocytosis. Cerebral symptoms are extremely rare. Fletcher[13] reported one such case, and Dickenson[14] one presenting marked symptoms of an acute meningitis, yet with a clear spinal fluid. Likewise, Bennett and Levine[10] described meningeal symptoms in a case with increased cells in the spinal fluid but no organisms.

Early in the course of the disease, during the so-called alterative-degenerative stage, the patient may be symptom-free. In

the more advanced exudative-inflammatory state, he may present the picture of an acute infection with continuous or intermittent fever, chills, and a relatively high leukocytosis. The localizing symptoms in the heart, kidneys, and gastrointestinal tract depend entirely upon involvement of blood vessels of these organs. Death may occur at this time from renal insufficiency, ruptured aneurysm, or cardiac infarction.

If the patient survives this stage, nodules may first be recognized growing out from the vessel wall. If the disease is localized, fever and leukocytosis may disappear with clinical cure resulting. More often, however, with widespread involvement, there will be anemia, marasmus, and emaciation. Even if the symptoms subside, there is usually a series of exacerbations with lesions in all stages present simultaneously. Hypertension, nephritis, renal insufficiency, cardiac symptoms, gastrointestinal complaints may be intense.

To follow the process one step farther, as is done by Arkin, in the stage of healing the symptoms are those of degeneration of the various organs of the body, due to deficient blood supply. Renal insufficiency, cardiac failure, cachexia, polyneuritis, and polyglandular insufficiency may be expected.

DIAGNOSIS

Diagnosis during life is infrequent. In a series of 38 cases reviewed by Lamb, antemortem diagnosis was established in only two instances. The diagnosis can be made with certainty only by excision of a nodule for microscopic examination. However, in a patient complaining of fever, polymyositis and polyneuritis, cramplike pains in the abdomen, symptoms of nephritis, plus variable symptoms due to disturbance of the blood supply to various organs, the disease may well be suspected.

PROGNOSIS

In all cases the prognosis is bad. Seventy per cent of the afflicted patients die within three months. In Lamb's review of the literature there is reported one cure, but that patient died two years later of portal thrombosis. Even after the patient has passed through the stage of healed granulation tissue formation described by Arkin, the deficient blood supply in the organs essential to life will result in renal insufficiency, cardiac failure (digitalis has no effect), severe liver disease, marasmus, and polyglandular insufficiency. Any one of these may be sufficient to cause death.

CONCLUSIONS

1. Though periarteritis nodosa is seldom recognized clinically, it probably occurs with relative frequency.

2. Periarteritis nodosa is apparently a specific infectious disease, though the causative agent has not been demonstrated. It has no demonstrable relationship to syphilis.

3. Though the diagnosis may be suggested by the symptoms, it can be established with certainty only by microscopic examination of small arteries.

4. The disease is progressive, leading always to a fatal termination.

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ON THE CONSERVATIVE TREATMENT OF PLACENTA PREVIA*

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In the past few years considerable literature has accumulated dealing with the radical treatment of placenta previa; that is, treatment by cesarean section. That good results have been obtained, in many instances, has been properly attested by writers of unquestionable honesty and broad experience.

It is not the purpose of this paper to attempt to cast unfavorable reflection upon those who are sincere in their attempts to popularize cesarean section as a means of management in placenta previa, but rather to point out that in their cases, in the majority of instances, there was no actual contra-indication to the abdominal route, while in our series, in a purely charity hospital, many formidable obstacles presented themselves. It is for this reason that I am presenting a series of seventy-three consecutive cases occurring on the obstetrical service of the Herman Kiefer Hospital in the past four years and to July 1st of the current year in the attempt to show that the obstetrician need not be discouraged if radical treatment, when the patient is first seen by him, is contra-indicated. It is true that some cases presenting certain findings, when first seen, are perhaps better treated by cesarean section, than by the more conservative vaginal delivery, although there are many obstetricians, even today with the much improving material risk by the abdominal route, who prefer not to widen the indications for cesarean section to include placenta previa—except in rare instances.

Private practice with adequate prenatal supervision affords many more cases for which cesarean section can be done, than does a service like ours, which is entirely charity with its attendant group of serious emergencies, among a class of patients who often seek no medical attention until overcome by serious bleeding—before or during labor. The type of case seen in private practice on the other hand usually reports the first bloody show, and her physician is in a position to make an accurate diagnosis and institute suitable treatment while the patient is still in good condition.

So far, then, as the conditions presenting themselves at the time the patient is first seen are concerned, I think we can agree that there *are* contra-indications for radical treatment, viz.:

1. Shock from blood loss.
2. 4 cm. or more dilatation with patient in active labor.
3. Vaginal tamponade.
4. Attempts at delivery from below.
5. Doubtful asepsis from repeated vaginal examinations.

In a large percentage of our cases one or more of these conditions existed.

With any, or any combination, of the above conditions I believe that the risk to the mother is likely to be greater with cesarean section than with delivery from below. This I also hold to be true whether the previa be marginal, lateral or central, and even in the light of the increasingly lowering maternal death rate with the low cervical section.

On the other hand there are women who can safely be delivered by section, viz.:

1. Primipara not in labor, or early in labor, with central or lateral placenta previa if seen before the bleeding is serious, or delivered *after* transfusion.

I think one could safely go farther and include multiparæ in this group with the same conditions present, provided that the operator is capable. We should always remember that there is a definite maternal risk attending cesarean section, even in the best hands and under ideal surroundings—in cases with less serious and urgent indications.

INCIDENCE

In the past four and one-half years we have had the opportunity of treating seventy-three cases of placenta previa in the obstetrical service of the Herman Kiefer Hospital. During this period 7,708 cases were delivered, giving an incidence for placenta previa of 1-105—much higher than

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Williams' estimate of 1-250 in the hospital practice and 1-1,000 for private practice. This can be accounted for by the fact that we admit a large number of emergency cases from a large city, who are seen for the first time by any physician only when in serious difficulty.

AGE AND PARITY

In the entire group there were only five primiparæ. Sixty-eight were multiparæ, having had from one to fifteen children. It is well known that the condition occurs relatively infrequently in primiparæ and that the frequency is influenced, not only by the number of children, but also by the rapidity with which the pregnancies have followed one another. W. H. Strassman finds the average age of his patient was 32.9 years and that the average number of labors was 6.38. In our series the average age was 30.2 and the average number of labors 5. Our youngest patient was seventeen, a para 1, and our oldest forty-five, a para XV. Fifteen were colored, fifty-eight white.

ETIOLOGY

Strassman emphasized that one of the most important factors in the development of placenta previa was to be found in defective vascularization of the decidua, resulting from inflammatory changes following repeated pregnancies. This, he held, limited the amount of blood to the placenta so that to obtain adequate nourishment it spread over a wider area and consequently occasionally approached the internal os.

SYMPTOMS

The symptoms of placenta previa are expressed almost entirely in terms of painless, causeless bleeding, occurring most commonly in the last trimester of pregnancy. Our cases without exception gave this as practically the only complaint—and their histories showed variation only in the number of attacks of bleeding and in the amount of blood loss. Very rarely is the initial hemorrhage in placenta previa fatal. We have grouped our cases according to blood loss on entrance to the hospital into severe, moderate and mild bleeding. As the blood pressure is the quickest available index in emergency cases, we classified as severe nineteen cases whose blood pressures were one hundred or less on entrance. Of the remaining cases, thirty-seven gave evidence of moderate hemorrhage, and seventeen of mild bleeding.

DIAGNOSIS

Uterine hemorrhage during the last three months of pregnancy should always give rise to a suspicion of placenta previa, which should not be dismissed until a definite conclusion is reached. One other condition, viz., premature separation of the placenta, may temporarily confuse the obstetrician, but this usually only if the separation be partial. True abruptio placentæ usually offers no difficulties in differential diagnosis, as the sudden pain and collapse and the board-like consistency of the uterus are characteristic.

A few points in diagnosis may well be borne in mind, viz.: (1) location of the presenting part, which is commonly high. (2) Location of the placental souffle, which is usually found low, just above the symphysis, (3) the cervix is softer and more patulous than usual, so that little difficulty is experienced in (4) passing the finger through it and feeling the characteristic spongy placental tissue.

In many instances satisfactory diagnosis has been made by rectal examination alone. If, however, this cannot be accomplished, vaginal exploration is done which makes the diagnosis final. These examinations are never done in a case of suspected placenta previa, until all preparation for the immediate control of hemorrhage has been made. In my experience I have seen three fatal cases resulting from bleeding where this precaution had not been taken.

TREATMENT

I have previously referred to the factors influencing the choice of treatment in the given case, but wish again to emphasize the importance of individualization and the abandonment of so-called routine treatment. We have tried to choose the proper treatment for the case, rather than to attempt to make the case fit any preconceived ideas as to therapeusis.

There are, at our command, the following methods for the treatment of placenta previa:

1. Expectancy.
2. Rupture of the membranes.
3. Braxton Hicks version.
4. Insertion of dilatable bag.
5. Cesarean section.

To treat a condition so serious as placenta previa by simply waiting for spontaneous delivery may seem like courting trouble. Nevertheless, twelve cases of placenta previa marginalis were so managed with good results and no maternal deaths. In all, dilatation was well advanced on entrance and bleeding mild. All preparations having been made for immediate control of hemorrhage, if necessary, the patients were allowed to continue in labor and delivered without complication.

Rupture of the membranes alone, which was followed by spontaneous delivery, was done four times successfully.

Braxton Hicks version was done only once in this series, as in hospital practice we favor the dilatable bag as giving, probably, a lower fetal mortality. It is, however, a method to be remembered, especially by the general practitioner, in cases encountered in the home, where bleeding must be controlled promptly.

The dilatable bag for the control of hemorrhage was used in forty-one cases. Its use was followed by spontaneous delivery in thirteen instances, by version and extraction twenty-three times, and by forceps delivery two times.

Other operative measures aiming at delivery and not at control of hemorrhage were version and extraction after complete dilatation—three cases. Breech extraction —two cases. Mid forceps—one case. Low forceps—two cases.

Cesarean section was done only seven times, the Porro operation three cases, classical section two cases, the low cervical section two cases, as follows:

1. Para III. 28. 8 mos. Previous section. Entered in shock with ruptured uterus and central placenta previa. Porro cesarean section. Child stillborn.

2. Para II. 26. Term. Central placenta previa, moderate bleeding, 2 cm. dilatation. Classical section.

3. Para IV. 37. 8 mos. Moderate bleeding. Central placenta previa. No dilatation. Low cervical section.

4. Para V. 35. 8 mos. Beginning labor, moderate bleeding, central placenta previa. Porro cesarean section. Child died, pulmonary atelectasis.

5. Para V. 39. Term. No dilatation, lateral placenta previa. Moderate bleeding. Classical section.

6. Para VI. 33. Term. Mild bleeding. No dilatation. Lateral placenta previa.

7. Para VI. 39. Term. Mild bleeding. No dilatation. Lateral placenta previa. Low cervical cesarean section.

It is seen, then, that of seventy-three cases of placenta previa, twelve of which were central, twenty lateral and forty-one marginal, all but seven were treated by conservative measures. In seven instances cesarean section was done for central or lateral placenta previa in patients in good condition, with little or no dilatation, who were obstetrically clean.

To insure a happy result in the treatment of this condition, it is necessary that our treatment (1) take measures to combat the effects of the blood already lost, (2) conserve further blood loss, (3) successfully deliver the patient. No method of combating blood loss is so successful as blood transfusion. Its use in placenta previa should be as nearly routine as anything can be in the practice of medicine. Even with hemorrhage carefully controlled the repeated loss of small amounts of blood before delivery are likely to result in a fatal outcome when added to the inevitable bleeding, even though moderate, that occurs after the third stage of labor. The replacement of lost blood is literally life-saving.

It can be seen that we have favored the use of the bag for the control of bleeding (41 cases) and to obtain dilatation of the cervix. In all but four instances, the intraovular introduction was done. It has been claimed that the extraovular method without rupture of the membranes is fully as successful in the control of bleeding and gives a somewhat lower fetal mortality, but I have not yet convinced myself that this is true.

In the actual delivery of the patient it must be borne in mind that attempts at manual dilatation of the cervix are disastrous, and should never be attempted. Delivery should not be contemplated until the cervix is completely dilated. If evidence of fetal embarrassment is discovered before dilatation is complete, it will have to be regretfully disconsidered in the interest of the mother. Delivery should be slow and gentle to avoid injury to a cervix whose integrity is already impaired by a low lying placenta. If the bleeding is to be controlled and dilatation obtained by the use of the bag, the obstetrician should be in constant attendance. The critical period is as the bag passes through the cervix, and, if the progress is not carefully watched, serious bleeding may occur behind the bag without being visible externally. It may be well to mention that a 10 cm. bag is sufficient to obtain the necessary dilatation with a patient at term.

After inserting it through the cervix it should be filled, but not over distended, with a large syringe and sterile water; the number of syringes fully necessary to accomplish this having been previously ascertained.

Unfortunately all the difficulties attendant upon the delivery of a case of placenta previa per vagina are not always finished with the birth of the child. Postpartum hemorrhage is common and the placenta should be delivered manually if necessary, to avoid loss of time. A rapid inspection of the cervix will reveal lacerations in need of repair, and leave the obstetrician feeling more certain that a surgical pack will control any further bleeding. If the patient shows evidence of blood loss, transfusion is again emphasized as the treatment of choice and also of necessity.

MORTALITY

Maternal: The prognosis for the mother in placenta previa is always serious. In these times the maternal mortality depends largely upon the type of placenta previa encountered, the method of delivery chosen for the individual case, the use of blood transfusion, and the condition of the patient when first seen. Bill of Cleveland deserves much credit for pointing out the value of prophylactic blood transfusion, in lowering mortality rate, with 1.78 per cent in fifty-six cases so treated, compared with 11.1 per cent in forty-five cases in which this precaution had not been taken. In 1926 Pankow reported a collection of 7,234 cases from the German Clinics with a mortality of seven per cent, and Jellet from the Dublin Rotunda, a rate of 3.6 per cent in 138 cases. Hitschman in 1921 collected 6,438 cases with 6.5 per cent maternal mortality. De Lee states that from twenty different parts of the world mortalities range from 1 to 19 per cent, and that "the best results are gotten by individual accoucheurs, which proves that much depends upon personal skill."

In our series of 73 cases, there were two maternal deaths, a rate of 2.7 per cent, as follows:

Case 1. Para VIII, age 34, 7 months. History of spotting for past two months. On entrance Hb. 53%. R.B.C. 2,740,000. Dilatation 4 cm. Profuse bleeding. Direct blood transfusion, 500 c.c. Placenta previa lateralis. Bag introduced with control of hemorrhage. Satisfactory first stage pains. Two hours later patient suddenly went into a state of shock and expired undelivered. Autopsy could not be obtained. On removal of the bag there was no concealed hemorrhage or palpable cervical injury.

Case 2. Para IV. Age 30. History of bleeding at home, 2 cm. dilatation and profuse bleeding upon entrance. Placenta previa centralis. Bag introduced with control of bleeding. Saline and glucose solution—proper type of donor for blood transfusion not available. Version and extraction after complete dilatation under light ether anesthesia. Patient expired on delivery table, child in good condition. Autopsy showed a severe chronic myocarditis, probable anesthetic death.

Fetal: Fetal mortality is disturbingly high in placenta previa. This is due not only to the seriousness of a condition which interferes with the circulation of the child, but to the frequency of prematurity. Prolapse of the cord also has a high incidence, tending to increase the infant mortality rate.

De Lee finds mortality rates ranging from ten to eighty per cent. Kustner thirty-five per cent, Bürger and Graf fifty-five per cent, Hetschman forty per cent and Strassman sixty-one per cent.

Seventy-four babies are to be considered in our series; of these, thirty-eight lived and thirty-six died, a gross rate of 48.6 per cent. Of those that died, twenty were premature, of which thirteen were nonviable. Five feti were dead on entrance and showed evidence of maceration. One fetus was a monstrosity. In all there were five cases of prolapsed cord. If nonviable prematures, macerated feti and the monstrosity are deducted, seventeen cases are to be considered, *i.e.*, net rate of 22.9 per cent.

This universally high fetal death rate has been used as an argument for the more radical treatment of placenta previa by cesarean section, with the idea that more children will be born alive. While this sounds reasonable, it must be remembered that a large percentage of the babies are premature, who even if born alive have a poor chance for surviving, and to subject the mother to added risk for the sake of a problematical child does not seem to be good judgment.

SUMMARY

Seventy-three cases of placenta previa are reported, twelve central, twenty lateral and forty-one marginal, of which sixty-six were treated by so-called conservative methods, and seven by cesarean section. The chief symptom complained of in all instances was bleeding, which was mild in seventeen instances, moderate in thirty-seven and severe in nineteen. The average age was 30.2 years, the average number of children five. Forty-one cases were treated by the use of dilatable bag, twelve by watchful expec-

tancy, four by artificial rupture of the membranes only, one by Braxton Hicks' version, and eight by methods aimed at delivery only. There were two maternal deaths, 2.7 per cent. Thirty-six babies did not survive, a gross death rate of 48.6 per cent. Deducting nonviable prematures, macerated feti and monstrosities, the net fetal death rate is 22.9 per cent.

CONCLUSIONS

1. Satisfactory results can be obtained by conservative treatment in placenta previa.
2. The choice of radical treatment by cesarean section should depend largely upon the condition of the patient when first seen. Patients in poor condition, or well advanced in labor, or not obstetrically clean, are not satisfactory risks for abdominal surgery.
3. Blood transfusion will at times reduce the surgical risk and make section comparatively safe.
4. The maternal death rate seems to be in indirect proportion to the frequency of blood transfusion.
5. Rapid manual dilatation of the cervix and hasty delivery are condemned as disastrous.
6. A high infant mortality is found universally—the result of prematurity, interference with fetal circulation and birth trauma.
7. It is questionable that this can be much reduced by the more frequent employment of cesarean section, except in cases at or near term, by the avoidance of operative delivery trauma.
8. Cases of placenta previa should be hospitalized.

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THE PRESENT STATUS OF ENDOCRINE DIAGNOSIS

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The term "endocrinologist" is a poor appellation for those members of the medical profession interested in endocrinology. This branch of medicine should awaken the interest of the entire profession, even those physicians engaged in the specialized branches. The haze of skepticism which has enshrouded it for so many years is being rapidly lifted. The honest-minded physician now can direct his attention toward this field without fear of criticism because today it is being rapidly placed upon a firm experimental basis. This newer basic knowledge is in no way due to the efforts of the medical profession but rather to the work done by our allied scientists—the biologists, the physiologists, the biochemists, and the anatomists. A great number of articles appearing in their journals are devoted exclusively to experimental endocrinology. For their efforts in experimentation the medical profession is greatly indebted, and it can repay this debt only by clinical application of their results where possible. *It is earnestly hoped that endocrinology will soon attain its rightful place in the curriculum of the medical school, and be taught together with anatomy, physiology, and pathology.*

Heretofore clinical endocrinology was largely a matter of individual theory with but a modicum of fact. Because of this the entire subject was poorly accepted. The competent research workers must be given a major credit for having placed endocrinology upon a fairly exact cytologic and biologic basis. Prominent examples of their work include the development of the following therapeutic glandular products: (1) adrenalin, an extract of the medullary portion of the suprarenal gland; (2) pituitrin, now divided into pitocin, the oxytocic fraction, and pitressin, the pressor fraction, derived from the posterior lobe of the hypophysis; (3) thyroxin, the true hormone of the thyroid gland; (4) insulin, a glycogenic hormone derived from the pancreas; (5) theelin, a true ovarian hormone derived from the ovarian follicle; (6) suprarenal cortex extract, a specific hormone derived from the cortex of the suprarenal gland; (7) the pituitary sex and growth hormone derived from the anterior lobe of the pitui-

tary gland. There are a number of others as yet not so well established.

These advances that have been made in a period of less than two decades indicate a branch of medical knowledge with a vista so broad and illuminating that its present day status represents only a partially complete understanding of its many underlying principles. With a more comprehensive appreciation of these principles it may well dominate the medical progress of the next decade and parallel the strides made in infectious disease control from 1890 to 1900.

Proper clinical evaluation and therapeutic application must necessarily come from the clinician. Without a basic knowledge of functions and interrelationships of the endocrine system, the clinician is in no position to interpret properly an abnormal function or to recognize this disturbance of function when presented in a patient.

Instances of specific therapy are still extremely rare in the general field of medicine but should not prove so in this new field. Therapy, to be specific, necessarily presupposes a specific diagnosis. Contrary to a commonly accepted belief, endocrine diagnoses are not fanciful but are based upon truly scientific clinical criteria. The ordinary means employed include history, physical examination and laboratory methods. A complete medical survey, moreover, must include all data with reference to *nonendocrine* disease as well as endocrine disorder. This is necessary in order to first *exclude all nonendocrine diseases* as a possible cause for the symptomatology. Before such nonendocrine causes are excluded, an endocrinopathy can not be contemplated. When they are positively excluded, it is necessary to note normal standards of endocrine balance. It is the deviations from normal that provide the basis for a diagnosis of endocrine disorder. The correlation of history, physical and laboratory examinations, hormonic signs and the course of endocrine disorders are included concomitantly with the routine observations made for nonendocrine disease.

Endocrine symptomatology relates specifically to disturbances in function and development with recognizable signs differing from those of nonendocrine disease. The clinician must, therefore, undertake additional clinical investigations to those ordinarily made for infectious, blood or neoplastic disease. The most important hormonic signs are determined from accurate measurements and roentgen examination of epiphyses to interpret the physical development. Intelligence tests afford an approximation of mental development, especially in children.

Other routine hormonic determinations are basal metabolism, blood chemistry (blood sugar, calcium, nitrogen, phosphorus, and urea), and also specific reactions of hormones extracted from the blood or urine of the patient. Also, the gross and cytological reactions produced after injections in certain organs are observed, such as those of the ovarian follicle from the pituitary-like sex hormone (Ascheim-Zondek test), and the hypertrophy of the atrophic accessory genitalia in castrated animals, produced by injection of the male testicular hormone. These tests for glandular function should soon have the same diagnostic significance as the Widal Wassermann reactions for typhoid and syphilis, when hormone contents of blood and urinalyses are made clinically available.

In order to identify endocrine disorders, it is further necessary to include additional information regarding the etiology and course of the disorder as compared with the ordinary history that is almost entirely limited to infectious, hemapoietic, and tumefactious causation. The physical and laboratory examinations must embrace the possible hormonic signs and reactions as well as those routinely described and obtained.

HISTORY

The most important etiologic factors are those referring to heredity and those clinical familial expressions which exhibit themselves as abnormal growth, development, and function of the body as a whole. Consequently, much more attention must be given to the family history than an inquiry of the ordinary infectious and systemic diseases. Endocrinopathies of the family must be determined on account of the direct as well as the indirect transmission of the endocrinopathies. The history of these disorders can be obtained by asking the patient simple questions understood by the layman. Among these are the presence of undergrowth or overgrowth in the family, evidence of obesity, goiter, diabetes, dermal pigmentation, and hairgrowths. Among the common disorders that are directly transmitted are the thyroidisms and pituitarisms. Careful inquiry into family history usually

discloses that there was some type of these disorders present in the parent, frequently in the mother.

Credibility that hereditary transmission is possible is suggested by experimental work in animals. Dr. Oscar Riddle of the Carnegie Institute, Cold Spring Harbor, New York, has succeeded in raising three lines of birds which all show a different level of thyroid function as proved by basal metabolic rates. The thyroid level of each succeeding progeny can be predicted before the hatching of these birds. Dr. Philip Smith, Columbia University, New York, has been able to rear a colony of hypopituitary rats. These rats in all their succeeding generations show evidence of pituitary failure, such as uniform undergrowth. Marine reports an experiment with a female dog having goiter. This dog first had a litter of puppies nearly all of whom had goiters. She was then given treatment for her goiter, which was continued through her second pregnancy. In the second litter of puppies, there was a complete absence of goiter.

These animal experiments prove the necessity for obtaining a careful *prenatal* endocrine history as well as family history. For instance, history should be solicited of the patient regarding a lack of endocrine response during pregnancy. Such response evidences itself in a gain of weight of less than fifteen or more than twenty-five pounds, ruling out, of course, increased food intake, and of a failure to return to normal form and weight after lactation. Signs of the lack of thyroid response to gravidity are those of mild myxedema, alabaster color, thickness and dryness of the skin, puffiness about the dorsum of the hands and fingers, supraclavicular region and face, somnolence, albuminuria, subnormal temperature and slow pulse, and *diminished basal metabolic rate*. Here the careful authoritative work of Rowe[1] should be consulted. Signs of lack of pituitary response to gravidity are osteophytic changes about the joints, unusual chloasma and pigmentations, tendency to blunting of the peak bones, coarseness of the facial features, and an unusual gain in weight. Toxemias of pregnancy still must be classified as a syndrome and treated individually, but the work of Cushing and others suggests that eclampsias with hypertension might possibly be due to a disturbance in function of the basophilic cell of the pituitary gland. The hypothyroidisms of pregnancy can and occasionally do assume the characteristics of a true toxemia and can be corrected with proper thyroid medication.

The *present* history of the patient should begin at birth and include data relative to the physical and mental development during infancy and juvenility. This information is obtained from the weight and length at birth, the time of dentition, walking, and talking, and reaction to food intake. Gastrointestinal upsets during the first and second years may arouse suspicions of endocrine disorder. History of the mental and physical development during juvenility is solicited by comparing the physical size and development of the patient with individuals of similar age and sex. Mental development is easily obtained from the progress through school.

Of most importance referable to endocrine imbalance is the history at the age of puberty, at which time many unsuspected latent disorders are activated. The time of the onset of secondary sex characteristics, including the menstrual history, may indicate a probable endocrine disorder present at that time; but it may be one that had its beginning during juvenility or even during infancy. Accepting thirteen years as the optimal, and twelve to fourteen years as the normal variation, for the onset of menses, deviation from this time indicates glandular disorder if all nonendocrine disease factors have been excluded. A few examples of menstrual abnormality are the early onset of menses before the age of twelve in hyperthyroidism and hypergenitalism or after fifteen in hypothyroidism, hypogonadism, and hypopituitarism. In hypopituitarism there is usually an early onset of periods of from ten to twelve years followed after a few years by marked irregularity in which there are intermenstrual intervals of three to four months. Other menstrual abnormalities, such as metrorrhagia, menorrhagia, and dysmenorrhea, are related to various types of endocrine disorders. Another sexual period, the history of which is related to the endocrinopathies, is that of the menopause. An early menopause usually indicates a pituitarism; whereas a prolongation of menstruation suggests a hypothyroidism. Both puberty and the climacteric are associated with the classical forms of goiters, that of adolescence with colloid goiter; whereas the

most frequent type of the menopause is the exophthalmic or toxic nodular goiter.

PHYSICAL EXAMINATION

A complete physical examination must be made for all the nonendocrine organs and systems to which are recorded those hormonic signs indicating abnormal endocrine function. The *general* physical examination should include sufficient endocrine data from which to draw conclusions regarding the type of the individual examined. The five most common types are those due to thyroid, pituitary, hypogonad, hypergenital, and adiposogenital disorder. The important signs indicating thyroidism refer largely to the nervous reaction and to changes in the thyroid gland itself. Hypothyroidisms have various grades of mental retardation; whereas the hyperthyroidisms have various stages of excitation as evidenced by their apprehensions, fears, tremor, and tachycardias. The presence or absence of a large thyroid should be noted in the general examination as well as the regional examination of the neck, at which point it is described more in detail. The pituitary and hypogonadal types are estimated largely by classical statural deviations. In the pituitary and early hypergenital types the upper measurement, from the symphysis to the vertex of the skull, is longer than the lower measurement, from the symphysis to the soles of the feet, and the height usually exceeds the span. The opposite of these measurements, the lower measurement being longer than the upper, and the span longer than the height, is present in the hypogonad type. The fourth, more infrequent, is that of hypergenitalism. Its two outspoken general signs are hypertrichosis associated with hypertrophy of the external genitalia. A fifth common type is that of adiposogenital pituitarism (Fröhlich's syndrome). Its characteristic sign is marked obesity, particularly of the girdle type, and it is associated with hypoplasia of the external genitalia. Although an individual may quite apparently be one of these types, it does not mean that he is suffering at that time from an endocrine imbalance. It may only indicate the influence of these various glands before completion of his maturity and growth.

Careful observations including accurate *measurements* of height, weight, upper and lower proportions and circumference measurements of the head, chest, and abdomen should be made as a matter of routine. Measurements are especially valuable during the infantile and juvenile periods, for one-third to one-half of the total structural growth is completed before the third year. The appended chart allows a necessary variation between the minimal and maximal measurements for the age indicated. Should there be a marked deviation from these minimal and maximal measurements as shown in the chart, and if all nonendocrine diseases are positively excluded, we can reasonably make a diagnosis of pituitarism; or, if roentgen studies of the development of the osseous centers show retardation, a diagnosis of hypothyroidism may be made. Achondroplasia, which may simulate either a hypopituitarism or hypothyroidism, must be ruled out by x-ray and serology.

Description of both generalized and localized *adiposity* should be given in detail. *Hairgrowth* and various other characteristic signs of the skin, such as *pigmentation,* thickness, dryness, and elasticity, should be recorded. Comparative estimations of the head, feet, and extremities with those of the body are included in the general examination. In addition to these hormonic signs of endocrine disorder are the routine findings such as station, gait, color, respiration, temperature, pulse rate, and mental reaction during the examination, together with abnormal signs such as cyanosis, dyspnea, and edema.

REGIONAL EXAMINATION

In the regional examination detailed examination is made of the various parts of the body from the head to the extremities in the routine way. During this examination, localized endocrine signs are described in detail with those of nonendocrine disease symptoms that may be present. Under the head, for example, the size, shape, and form are noted, and also the position of the ears and placement of features. Under the *eye,* the character of eyebrows and lashes, exophthalmos, and enophthalmos, and thyroid signs such as Dalrymple's, Von Graefe's, Stillwagen, et cetera, are noted. Under the description of the *nose,* a retroussé nose is frequently found with congenital hypothyroidism. This, of course, must be differentiated from a saddling of the nose due to destruction of the septum in syphilis. Under the *mouth,* detailed description of the orthodontial markings indicating various

glandular disorders is made. Under the regional examination of the *neck*, any abnormality of the thyroid is described in detail. Such similar hormonic signs of endocrine disorder are included in all the various regions of the *chest, abdomen, genitalia,* and extremities. Under the *reflexes,* in addition to those ordinarily obtained, Chvostek and Trousseau tests are made.

NORMAL MEASUREMENTS in relation to AGE

I.

AGE	Height (inches)				Weight (pounds)				Span (inches)				Upper Measurement (inches)				Lower Measurement (inches)				Circumference Measurements (inches)					
	M		F		M		F		M		F		M		F		M		F		Head		Chest		Waist	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	M	F	M	F	M	F
Birth	19.3	21.1	19.0	20.6	6.2	8.6	6.4	8.6	18.1	20.1	18.1	19.9	12.1	13.1	12.1	13.1	6.9	7.9	6.9	7.9	13.9	13.6	13.8	13.6	13.4	13.2
1 Mo.	20.9	22.9	20.5	22.5	9.0	11.8	8.4	11.0	20.1	22.1	19.6	21.6	13.3	14.3	13.0	14.0	7.7	8.7	7.5	8.5	15.2	14.9	14.3	14.1	15.9	15.6
2 Mos.	22.1	24.1	21.7	23.7	10.4	13.6	9.8	12.6	21.0	23.0	20.4	22.4	13.9	14.9	13.6	14.6	8.1	9.1	7.9	8.9	16.0	15.7	15.6	15.3	15.8	15.0
3 "	23.1	25.1	22.7	24.7	11.9	15.3	11.2	14.2	22.0	24.0	21.4	23.4	14.5	15.5	14.1	15.1	8.5	9.5	8.4	9.4	16.6	16.3	16.4	16.0	16.0	15.7
4 "	24.0	26.0	23.6	25.6	13.2	16.8	12.4	15.8	22.9	25.1	22.3	24.3	15.0	16.0	14.7	15.7	9.0	10.0	8.8	9.8	17.0	16.7	16.9	16.5	16.8	16.2
5 "	24.7	26.7	24.3	26.3	13.9	17.7	13.7	17.3	23.3	25.5	23.3	25.3	15.3	16.3	15.2	16.2	9.2	10.2	9.3	10.3	17.4	17.1	17.2	16.8	16.6	16.5
6 "	25.4	27.4	25.0	27.0	15.2	19.4	14.3	18.1	24.3	26.5	23.8	25.8	15.9	16.9	15.5	16.5	9.6	10.6	9.5	10.5	17.7	17.3	17.5	17.0	17.1	16.8
7 "	26.1	28.1	25.6	27.6	15.9	20.1	14.9	18.9	24.8	27.0	24.3	26.3	16.1	17.1	15.8	16.8	9.9	10.9	9.7	10.7	17.9	17.5	17.7	17.2	17.3	17.0
8 "	26.6	28.6	26.1	28.1	16.5	20.9	15.6	19.6	25.3	27.5	24.8	26.8	16.3	17.5	16.0	17.0	10.0	11.2	10.0	11.0	18.1	17.7	17.9	17.4	17.5	17.2
9 "	27.1	29.1	26.6	28.6	17.1	21.7	16.1	20.3	25.8	28.0	25.2	27.2	16.5	17.7	16.3	17.3	10.3	11.5	10.2	11.2	18.2	17.8	18.0	17.6	17.6	17.3
10 "	27.6	29.6	27.1	29.1	17.6	22.4	16.6	21.0	26.2	28.4	25.7	27.7	16.8	18.0	16.4	17.6	10.5	11.7	10.4	11.6	18.4	18.0	18.2	17.8	17.7	17.4
11 "	28.1	30.1	27.6	29.6	18.3	23.1	17.3	21.7	26.7	28.9	26.1	28.3	17.0	18.2	16.7	17.9	10.6	12.0	10.6	11.8	18.8	18.1	18.3	17.9	17.8	17.5
12 "	28.4	30.6	28.0	30.0	18.9	23.9	17.8	22.4	27.2	29.4	26.6	28.8	17.3	18.5	16.9	18.1	11.0	12.2	10.9	12.1	18.6	18.2	18.5	18.1	17.9	17.6
13 "	29.6	31.8	29.1	31.3	20.1	25.3	18.9	23.7	28.2	30.4	27.6	29.8	17.8	19.0	17.4	18.6	11.5	12.7	11.4	12.6	18.9	18.5	18.9	18.4	18.2	17.9
14 "	30.8	33.0	30.3	32.5	21.9	27.3	20.6	25.8	29.6	32.0	29.0	31.2	18.6	19.8	18.1	19.3	12.2	13.4	12.2	13.4	19.1	18.7	19.1	18.7	18.5	18.2
15 "	31.7	34.1	31.3	33.5	23.1	28.7	21.7	27.1	30.6	33.0	29.9	32.3	18.9	20.3	18.6	19.8	12.7	14.1	12.7	13.9	19.3	18.9	19.4	19.0	18.7	18.4
16 "	32.7	35.1	32.2	34.6	24.3	30.1	22.9	28.5	31.5	33.9	30.9	33.3	19.4	20.8	18.9	20.3	13.2	14.6	13.2	14.6	19.4	19.0	19.7	19.2	18.9	18.6
17 "	33.5	36.9	33.9	36.3	26.1	32.3	24.7	30.7	32.9	35.5	32.4	34.8	20.0	21.4	19.6	21.0	14.1	15.5	14.0	15.4	19.6	19.2	20.2	19.6	19.2	18.9
18 "	34.0	36.6	33.9	36.0	28.7	35.3	26.6	33.0	34.8	37.6	33.8	36.4	20.7	22.3	20.0	21.6	15.2	16.8	14.9	16.5	19.8	19.4	20.6	20.0	19.5	19.1
19 "	34.5	37.1	34.2	37.2	29.9	37.1	27.6	35.2	35.3	38.1	34.5	37.5	21.2	22.8	20.5	22.2	15.8	17.4	15.5	17.1	20.0	19.6	21.0	20.4	19.8	19.4
20 "	34.8	37.2	34.5	37.5	30.5	37.5	28.6	35.2	36.3	39.1	35.2	38.0	21.3	22.9	20.6	22.2	16.1	17.7	15.8	17.4	20.0	19.6	21.0	20.4	19.8	19.3
21 "	35.1	37.7	34.8	37.8	31.8	39.2	30.5	37.5	37.3	40.3	36.7	39.5	21.6	23.2	21.2	22.8	16.8	18.4	16.7	18.3	20.1	19.7	21.4	20.7	20.0	19.5
22 "	35.4	38.0	35.1	38.1	32.6	40.2	31.5	38.5	37.8	41.0	37.5	40.5	21.9	23.5	21.5	23.1	17.2	19.0	17.1	18.9	20.2	19.8	21.6	21.0	20.1	19.7
23 "	35.7	38.3	35.4	38.4	33.4	41.2	32.3	39.3	38.3	41.5	38.0	41.0	22.1	23.8	21.8	23.4	17.5	19.3	17.4	19.2	20.3	19.9	21.8	21.2	20.2	19.8
24 "	36.0	38.6	35.7	38.7	34.2	42.2	33.1	40.1	38.8	42.0	38.5	41.5	22.4	24.1	22.1	23.7	17.8	19.6	17.7	19.5	20.4	20.0	22.0	21.4	20.3	19.9
25 "	36.3	38.9	36.0	39.0	35.0	43.2	33.9	41.0	39.3	42.5	39.0	42.0	22.7	24.4	22.4	24.0	18.1	19.9	18.0	19.8	20.5	20.1	22.2	21.6	20.4	20.0
26 "	36.6	39.2	36.3	39.3	35.8	44.2	34.7	41.9	39.8	43.0	39.5	42.5	23.0	24.7	22.7	24.3	18.4	20.2	18.3	20.1	20.6	20.2	22.4	21.8	20.5	20.1
27 "	36.9	39.5	36.6	39.6	36.6	45.2	35.5	42.8	40.3	43.5	40.0	43.0	23.3	25.0	23.0	24.6	18.7	20.5	18.6	20.4	20.7	20.3	22.6	22.0	20.6	20.2
28 "	37.2	39.8	36.9	39.9	37.4	46.2	36.3	43.7	40.8	44.0	40.5	43.5	23.6	25.3	23.3	24.9	19.0	20.8	18.9	20.7	20.8	20.4	22.8	22.2	20.7	20.3
29 "	37.5	40.1	37.2	40.2	38.2	47.2	37.1	44.7	41.3	44.5	41.0	44.0	23.9	25.6	23.6	25.2	19.3	21.1	19.2	21.0	20.9	20.5	23.0	22.4	20.8	20.4
30 "	37.8	40.4	37.5	40.5	39.0	48.2	37.9	45.7	41.8	45.0	41.5	44.5	24.2	25.9	23.9	25.5	19.6	21.4	19.5	21.3	21.0	20.6	23.2	22.6	20.9	20.5
31 "	38.1	40.7	37.8	40.8	39.8	49.2	38.7	46.7	42.3	45.5	42.0	45.0	24.5	26.2	24.2	25.8	19.9	21.7	19.8	21.6	21.1	20.7	23.4	22.8	21.0	20.6
32 "	38.4	41.0	38.1	41.1	40.6	50.2	39.5	47.7	42.8	46.0	42.5	45.5	24.8	26.5	24.5	26.1	20.2	22.0	20.1	21.9	21.2	20.8	23.6	23.0	21.1	20.7
33 "	38.7	41.3	38.4	41.4	41.4	51.2	40.3	48.7	43.3	46.5	43.0	46.0	25.1	26.8	24.8	26.4	20.5	22.3	20.4	22.2	21.3	20.9	23.8	23.2	21.2	20.8
34 "	39.0	41.6	38.7	41.7	42.2	52.2	41.1	49.7	43.8	47.0	43.5	46.5	25.4	27.1	25.1	26.7	20.8	22.6	20.7	22.5	21.4	21.0	24.0	23.4	21.3	20.9
35 "	39.3	41.9	39.0	42.0	43.0	53.2	41.9	50.7	44.3	47.5	44.0	47.0	25.7	27.4	25.4	27.0	21.1	22.9	21.0	22.8	21.5	21.1	24.2	23.6	21.4	21.0
36 "	39.6	42.2	39.3	42.3	43.8	54.2	42.7	51.7	44.8	48.0	44.5	47.5	26.0	27.7	25.7	27.3	21.4	23.2	21.3	23.1	21.6	21.2	24.4	23.8	21.5	21.1
37 "	39.9	42.5	39.6	42.6	44.6	55.2	43.5	52.7	45.3	48.5	45.0	48.0	26.3	28.0	26.0	27.6	21.7	23.5	21.6	23.4	21.7	21.3	24.6	24.0	21.6	21.2
38 "	40.2	42.8	39.9	42.9	45.4	56.2	44.3	53.7	45.8	49.0	45.5	48.5	26.6	28.3	26.3	27.9	21.9	23.8	21.8	23.7	21.8	21.4	24.8	24.2	21.7	21.3
39 "	40.5	43.1	40.2	43.2	46.2	57.2	45.1	54.7	46.3	49.5	46.0	49.0	26.9	28.6	26.6	28.2	22.1	24.0	22.0	23.9	21.9	21.5	25.0	24.4	21.8	21.4
40 "	40.8	43.4	40.5	43.5	47.0	58.2	45.9	55.7	46.8	50.0	46.5	49.5	27.2	28.9	26.9	28.5	22.3	24.2	22.2	24.1	22.0	21.6	25.2	24.6	21.9	21.5
41 "	41.1	43.7	40.8	43.8	47.8	59.2	46.7	56.7	47.3	50.5	47.0	50.0	27.5	29.2	27.2	28.8	22.5	24.4	22.4	24.3	22.1	21.7	25.4	24.8	22.0	21.6
42 "	41.4	44.0	41.1	44.1	48.6	60.2	47.5	57.7	47.8	51.0	47.5	50.5	27.8	29.5	27.5	29.1	22.7	24.6	22.6	24.5	22.2	21.8	25.6	25.0	22.1	21.7
43 "	41.7	44.3	41.4	44.4	49.4	61.2	48.3	58.7	48.3	51.5	48.0	51.0	28.1	29.8	27.8	29.4	22.9	24.8	22.8	24.7	22.3	21.9	25.8	25.2	22.2	21.8
44 "	42.0	44.6	41.7	44.7	50.2	62.2	49.1	59.7	48.8	52.0	48.5	51.5	28.4	30.1	28.1	29.7	23.1	25.0	23.0	24.9	22.4	22.0	26.0	25.4	22.3	21.9
45 "	42.3	44.9	42.0	45.0	51.0	63.2	49.9	60.7	49.3	52.5	49.0	52.0	28.7	30.4	28.4	30.0	23.3	25.2	23.2	25.1	22.5	22.1	26.2	25.6	22.4	22.0
46 "	42.6	45.2	42.3	45.3	51.8	64.2	50.7	61.7	49.8	53.0	49.5	52.5	29.0	30.7	28.7	30.3	23.5	25.4	23.4	25.3	22.6	22.2	26.4	25.8	22.5	22.1
47 "	42.9	45.5	42.6	45.6	52.6	65.2	51.5	62.7	50.3	53.5	50.0	53.0	29.3	31.0	29.0	30.6	23.7	25.6	23.6	25.5	22.7	22.3	26.6	26.0	22.6	22.2
48 "	43.2	45.8	42.9	45.9	53.4	66.2	52.3	63.7	50.8	54.0	50.5	53.5	29.6	31.3	29.3	30.9	23.9	25.8	23.8	25.7	22.8	22.4	26.8	26.2	22.7	22.3
49 "	43.5	46.1	43.2	46.2	54.2	67.2	53.1	64.7	51.3	54.5	51.0	54.0	29.9	31.6	29.6	31.2	24.1	26.0	24.0	25.9	22.9	22.5	27.0	26.4	22.8	22.4
50 "	43.8	46.4	43.5	46.5	55.0	68.2	53.9	65.7	51.8	55.0	51.5	54.5	30.2	31.9	29.9	31.5	24.3	26.2	24.2	26.1	23.0	22.6	27.2	26.6	22.9	22.5
51 "	44.1	46.7	43.8	46.8	55.8	69.2	54.7	66.7	52.3	55.5	52.0	55.0	30.5	32.2	30.2	31.8	24.5	26.4	24.4	26.3	23.1	22.7	27.4	26.8	23.0	22.6
52 "	44.4	47.0	44.1	47.1	56.6	70.2	55.5	67.7	52.8	56.0	52.5	55.5	30.8	32.5	30.5	32.1	24.7	26.6	24.6	26.5	23.2	22.8	27.6	27.0	23.1	22.7
53 "	44.7	47.3	44.4	47.4	57.4	71.2	56.3	68.7	53.3	56.5	53.0	56.0	31.1	32.8	30.8	32.4	24.9	26.8	24.8	26.7	23.3	22.9	27.8	27.2	23.2	22.8
54 "	45.0	47.6	44.7	47.7	58.2	72.2	57.1	69.7	53.8	57.0	53.5	56.5	31.4	33.1	31.1	32.7	25.1	27.0	25.0	26.9	23.4	23.0	28.0	27.4	23.3	22.9
55 "	45.3	47.9	45.0	48.0	59.0	73.2	57.9	70.7	54.3	57.5	54.0	57.0	31.7	33.4	31.4	33.0	25.3	27.2	25.2	27.1	23.5	23.1	28.2	27.6	23.4	23.0
56 "	45.6	48.2	45.3	48.3	59.8	74.2	58.7	71.7	54.8	58.0	54.5	57.5	32.0	33.7	31.7	33.3	25.5	27.4	25.4	27.3	23.6	23.2	28.4	27.8	23.5	23.1
57 "	45.9	48.5	45.6	48.6	60.6	75.2	59.5	72.7	55.3	58.5	55.0	58.0	32.3	34.0	32.0	33.6	25.7	27.6	25.6	27.5	23.7	23.3	28.6	28.0	23.6	23.2
58 "	46.2	48.8	45.9	48.9	61.4	76.2	60.3	73.7	55.8	59.0	55.5	58.5	32.6	34.3	32.3	33.9	25.9	27.8	25.8	27.7	23.8	23.4	28.8	28.2	23.7	23.3
59 "	46.5	49.1	46.2	49.2	62.2	77.2	61.1	74.7	56.3	59.5	56.0	59.0	32.9	34.6	32.6	34.2	26.1	28.0	26.0	27.9	23.9	23.5	29.0	28.4	23.8	23.4
60 "	46.8	49.4	46.5	49.5	63.0	78.2	62.0	75.7	56.8	60.0	56.5	59.5	33.2	34.9	32.9	34.5	26.3	28.2	26.2	28.1	24.0	23.6	29.2	28.6	23.9	23.5

Table I. Table giving the minimal and maximal variations, from birth to twenty years of age, in weight and measurements taken routinely in an endocrine survey. (Engelbach's Endocrine Medicine.)

LABORATORY

The examinations made in the laboratory consist of the ordinary routine procedures including urine, blood, feces, sputum, stomach contents, and functional renal tests. In addition to these laboratory reactions made for nonendocrine diseases, the following tests are part of the routine laboratory investigation: (1) basal metabolism, (2)

endocrine reactions, (3) blood chemistry, (4) autonomic nervous reactions, (5) allergic reactions, (6) roentgenographic findings, and (7) electrocardiograms. In tests. So far, these specific therapeutic reactions for diagnosis have proved of little or no value, but it is hoped that with the elaboration of absolute specific substances or

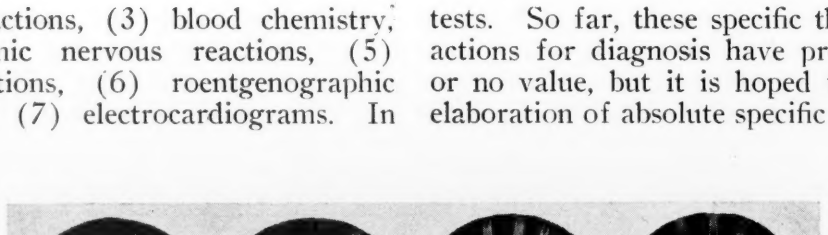

Fig. 1. A, showing closure of epiphyses and phalanges at six years of age, which normally does not occur until sixteen, with marked advancement of development in the carpal bones. B, showing normal development of epiphyses and carpal bones at the age of six years. C, showing marked retardation in development of carpal bones and absence of the terminal epiphysis of the ulna at the age of six years. D, showing delay in epiphyseal closure. Nonunion of the epiphyses of the metacarpals, which should fuse at the fifteenth year. Nonunion of the epiphyses of the radius and ulna, which should normally fuse between the ages of seventeen and eighteen years.

individual cases, where especially indicated, some of the following special examinations are made: capillary microscopy; ear, nose, and throat examinations; ocular examination; and cystoscopic, neuropsychic and sensory examinations.

Of the routine examinations, the basal metabolic and the roentgenographic are the most important. It must be emphasized, however, that abnormality of the basal metabolic rate does not indicate thyroid disorder except when all other positive causes for basal metabolic changes can be excluded. For instance, infectious diseases, leukemias, pernicious anemia, and suprarenal cortex tumor frequently cause a marked elevation or decrease of basal metabolic rate beyond its normal prediction. Basal metabolism is not markedly altered by pituitarism, gonadism, thymus enlargement, or status thymicolymphaticus unless they have associated thyroid involvement.

The endocrine reactions are divided into general and focal. The general reactions are the effects produced by injections of the various specific substances such as adrenalin, pituitrin, thyroxin, anterior lobe extracts, and gonadal extracts upon the blood pressure, pulse, and general condition of the individual. The focal reactions are limited to regional reactions, in the neighborhood of the gland, produced by an injection of its hormone. An example of this would be the production or relief of headache by the injection of the hormones from the anterior lobe of the pituitary gland. In other words, these are similar to so-called therapeutic hormones, they can be better utilized.

Blood chemistry includes the routine tests of nonprotein nitrogen, uric acid, creatinin, calcium, phosphorus, and sugar. Comparison of these with their normal variations may indicate an abnormal activity of some of the endocrine glands. The autonomic nervous reactions are those produced by the injection of pilocarpin, atropin, nicotin, histamin, eserin, and curare, upon the sympathetic and parasympathetic divisions of the autonomic nervous system. These tests have been of very little diagnostic value. The allergic tests are the ordinary intradermal tests made for sensitization. These, too, are of very little value in the diagnosis of endocrine disorders.

The *roentgenologic* determinations apply particularly to thyroidism and gonadism. Those applying to thyroidism are directed towards the time of appearance of the epiphyseal centers, and those applying to gonadism are directed towards the union of the epiphyses. In hypothyroidism there is a delay, and in hyperthyroidism and hypergenitalism an advance, of the appearance and development of the epiphyses. In hypogenitalism there is a marked delay of the union and in hypergenitalism a very early closure of the epiphyses of the long bones. Consequently, in the younger ages, at a time when it is difficult to obtain or interpret basal metabolic rates, roentgen examinations of epiphyses are of much more accurate service in estimating thyroid function. In fact, by this means hypothyroidism and cretinism can be diagnosed at birth by x-ray

of the knee and ankle and noting the centers of ossification which should be normally present at that time in these joints. In addition to making these routine roentgenograms, those of the sella and thymus are usually included. In special cases roentgenograms of the gastro-intestinal tract, gallbladder, kidneys, and pelvis are made as indicated. Suprarenal cortex disorder should have pyelograms made to indicate an encroachment on the kidney by a tumor from above. Roentgenograms of the pneumoperitoneum should be taken to determine a growth extending into the abdominal cavity from the cortex of the suprarenal gland. X-ray of the kidney area may reveal calcium deposit shadows of the suprarenal.

Electrocardiographic examination is made routinely, particularly in those cases having cardiac arrhythmias. The tachycardias, flutters, and fibrillations due to thyroidism are frequently modified by the injection of a small dose of thyroxin, as shown on the electrocardiogram. Capillary microscopy frequently demonstrates a marked variability of the capillaries in the nails and skin in those disorders affecting the autonomic nervous system. In pituitary tumor as well as other intracranial lesions, special ocular examinations should be included. By means of perimeter charts the course of pituitary tumor with regard to its progress or cessation can often be demonstrated. Ordinary neuropsychical examinations are made routinely, and, in cases having marked mental, psychic, or behavioristic symptoms, special examinations should be made by a competent psychiatrist.

While the foregoing material presents many positive signs of endocrine abnormality in the patient, it does not necessarily follow that one or more such findings are sufficient to constitute a diagnosis of specific endocrinopathy. Here, too, just as in organic and infectious diseases, one can arrive at a proper diagnosis only when all findings are collected and properly correlated, and each observation interpreted in terms of all other observations. With this in mind, a specific diagnosis of endocrine imbalance can be made and very often specific therapy can be instituted.

The clinical side of endocrinology will doubtless change very rapidly within the next few years as new facts are added to the present fund of knowledge on the subject. Based upon facts now known and their practical and successful application, clinical endocrinology is rapidly becoming established upon such a firm basis that it should soon be recognized as one of the more important branches of medical practice.

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NOCTURNAL ENURESIS

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A review of the literature concerning bedwetting reveals a widespread difference of opinion among medical writers as to the causes. For the most part the older writers stressed the importance of the role of pathology of the genito-urinary tract. Phimosis, urethritis, cystitis, deformities of the bladder, pyelitis and nephritis are among the more common causes enumerated. Later, emphasis was laid upon disturbances of the peripheral nerve supply, such as caused by myelodysplasia or incomplete development of the lower segments of the spinal cord. Several writers have reported as high as 35 per cent of enuretics with occult spina bifida. Atonic sphincters and the so-called "irritable bladder" are frequently mentioned. Still later the trend was toward psychic or neurotic factors. The association with dreams was widely discussed. With the development of the mental hygiene movement, a different viewpoint came into popularity. Hamill,[1] who is regarded as an authority on this subject, stated in 1929 that enuresis is a conduct disorder and may be discontinued when the child so desires. Feer[2] recently in a German publication classified enuretics in two groups: first, the careless type; and, second, the neuropathic type.

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The subject of enuresis has been studied intensively in institutions, as they afford better conditions for observation and treatment than are available in private practice. Wodak[3] in 1918 stated that in a German feebleminded school 41 per cent of the children were enuretic. A search through the reports of children's institutions in the United States reveals only one reference to this subject. The Children's Village, at Dobbs Ferry-on-Hudson, New York, generally regarded in the front rank of institutions for children in this country, states in its Annual Report for 1931 that "15 per cent of its population was enuretic," before adopting some of the methods described in this paper. In a verbal communication to Dr. Robert H. Haskell, Medical Superintendent of the Wayne County Training School, Mr. Leonard W. Mayo,[4] Assistant Director of the Children's Village, stated that Dr. Marion Kenworthy declared that practically every institutionalized child is a potential enuretic. The explanation is that the child feels that he has been deprived of the normal home contact to which he is entitled and he harbors a spirit of resentment towards the institution which prevents him from enjoying this privilege. He therefore proceeds to salve his irritation by literally "peeing" on the institution. Statements of a high percentage of enuretics and an almost uniform inability to cope with this problem have been expressed to us by officials of several institutions, both for mentally normal and retarded children.

In the Wayne County Training School we have failed to observe enuresis occurring as a result of "spite" or resentment toward the institution. None of our severe cases has been behavior problems of the mildest degree. Our records show little if any seasonal variation. There are twice as many wet beds proportionately among the boys than the girls. Only one case, a 15 year old boy, showed demonstrable genito-urinary pathology, a marked hypospadias. We have at times observed an amusing, but nevertheless definite, increase in the number of wet beds during the night following some such excitement as a party, athletic game, or an all day Fourth of July celebration.

Enuresis is a problem of major importance to the pediatrician. It is probably present at some time or other in the majority of homes in which there are children, and is a source of inestimable worry and inconvenience to many parents. This paper is intended to give the practicing pediatrician, who does not have a large group of children under such constant supervision, the results of our observation on this subject.

The Wayne County Training School is a relatively new institution for high grade morons or borderline types of mentally defective children. Fourteen hundred children have been admitted since it was opened in 1926. Their ages range roughly from 6 to 20 years with an average age of 15. The average age at the time of admission is approximately 12 years, while the average I.Q. of the group is about 65.

This study began December 1, 1929. There had been, up to that time, 60 recorded enuretics among the 781 previous admissions. No special efforts had been made to guarantee that all the earlier enuretics were recorded. Since that time 83 additional enuretics have been admitted among a total of 579 children, giving a total of 143 known enuretics, or 10.5 per cent of the population, who have been under treatment. Their average age is 12 years. These children, during their entire residence in the Training School, are subject to a richly developed, modern medical regime. We were not satisfied with the progress being made in curtailing nocturnal enuresis and so in December, 1929, took steps which led to the beginning of the development of our present program.

Various methods of treatment were used unsuccessfully at the beginning of this study. Medical therapy, with one exception, which will be discussed later, proved ineffective. Atropine, in full doses, frequently recommended for the treatment of this condition, produced no change in continence in the five children on which it was used. Other drugs which proved ineffective were various endocrine products, particularly thyroid and pituitary extract, strychnine, and hexamethylamine.

Another method of treatment resorted to was the attempt to train the urinary sphincter muscles by means of exercises designed to increase their tonus. The child was directed to "stop" and "start" several times during each act of urination. This system was religiously tried on a group of six children for one month with no demonstrable improvement in any of them. Furthermore the children soon became extremely bored

with this procedure, after the initial novelty had worn off.

Such methods as attempts to restrict the intake of fluids in the later afternoon, the keeping of charts, which recorded dry beds by means of various colored stars, a system of rewards, and the repetition of such stilted phrases at bedtime as "I won't wet my bed" or "I'll keep my bed dry," were long ago discarded as useless.

A system of awakening the child and calling him to the toilet was then instituted. This procedure alone caused permanent disappearance of the difficulty in 112 or 78.3 per cent of the total number of enuretics.

The method we established is roughly as follows: Observations showed that the hour of wetting the bed was practically the same each night for a given child. This hour, at which a given child may be expected to wet the bed is discovered by the night supervisor and then the child is awakened about one hour previous to his scheduled wetting time. A certain small number require the adding of other hours in order to insure a dry bed in the morning. Experience showed that it was not enough to lead a half wakened child to the lavatory, and we were convinced for our purpose that it was necessary to awaken the child completely so that the process of evacuating the bladder would be a voluntary act. There is no recourse to punishment unless one wishes to so label the inviolate custom of requiring each bedwetter to wash out his own wet sleeping garments and bed linen the following morning. The length of time which this procedure was followed varied from one to six months. The habit seemed to be broken very early in most of the cases. Our experience showed, in the great majority of cases, that a cure was effective in one month or less. When the time was thought proper the calling was discontinued abruptly without warning. Our observations do not indicate that those children who awaken themselves do so at the former hour of calling or not. The foregoing simple procedure produced cure in approximately 80 per cent of the children treated. Thirty-one children of the 143, or 21.7 per cent, however, would revert back to their former habit when calling was discontinued.

Ten children of this 31, or about one-third, who failed to respond to this simpler form of treatment were older children engaged during the day in out-of-door manual labor and reported as being very difficult to awaken. The experiment was tried of giving these ten older children about 2½ grains of caffeine at bedtime in the form of a cup of strong black coffee. The drug was given, not for its diuretic action, but for its effect as a cortical stimulant with the idea of reducing the depth of sleep and thus permitting the stimulus of the full bladder to disturb consciousness. The results surpassed even our theoretical anticipations. The plan was to continue the use of caffeine only for a short time as most of the children responded to it very early. Two of these older children, in the beginning, would get up by themselves but the apparent cure of the habit was only temporary. The possibility of an acquired tolerance to the drug may have been a factor.

For younger children in whom the calling system does not prove effective, still another method was developed. The aim of this plan was to give the child a strong incentive to keep his bed dry. This was accomplished by hospitalizing the child in a single room. No visitors were allowed to see the child. He was informed that his condition was rather complicated and required intensive study. He was confined strictly to bed. He was given disagreeable tasting medication, such as cod liver oil, and tincture of ammonium valerianate. He was further aroused every half hour during the night and given a urinal. These measures were intentionally planned to make the child's stay in the hospital not pleasant, yet he was given to understand clearly that the treatment was in no sense a punishment. The physician made daily visits to each child and discussed with each the progress of his case. In every instance, coöperation, rather than resentment, was obtained. At the end of a week of this treatment the child was discharged from the hospital back to his cottage. He was told that in case he wet his bed again, he would have to repeat the treatment. In eight cases so treated, it was necessary to repeat only once in two cases. No other treatment was given. The child was put entirely on his own responsibility. None of these eight children has wet the bed since this treatment was concluded, in spite of the fact that they were the most severe enuretics previously and were considered hopeless, from the standpoint of cure.

One boy, Albert C., now aged 15, may

serve as an example. Admitted to the Training School in June, 1928, with a previous history of persistent enuresis, he failed to respond to the routine treatment of calling. He was the most severe enuretic in the School. He would wet his bed on an average of every third night in spite of frequent callings each night. This situation continued for four years, in spite of all forms of treatment attempted. One week's treatment in the hospital as just described, in November, 1932, cured the bedwetting once and for all, notwithstanding the fact that he has not been called at night since that time.

The results obtained by this method are due to the fact that the child has a strong incentive to keep his bed dry, the incentive being a dislike of undergoing another strenuous period of investigation and treatment. It seems probable that the child decided that, rather than submit to another period of hospitalization, he will take matters into his own hands, and when such a decision has been formed no further wet beds will be found. For instance, an attempt was made formerly to restrict fluids. This was ineffectual, the child acquiring fluids by various "bootlegging" measures, such as drinking water while under the shower, etc. After undergoing a "treatment" it is not necessary to order the fluids restricted, the child does not care to drink and will not drink under any circumstances. Each child, following his cure, was interviewed and asked why he stopped wetting the bed, and the answer was essentially the same in each case—that he previously hadn't cared much whether he wet the bed or not, but that this feeling was changed by the unpleasant experience he had had.

Fifteen cases or 10.5 per cent of the group of enuretics have failed to show improvement. Two of these were paroled from the School before treatment was completed and nine are recent admissions, having been at the School less than one year. The average age of this group is two years less than the average age of the other entire group of enuretics. A few of these children, the more difficult cases, are being worked with in conjunction with the psychiatrist and encouraging results are already being observed.

SUMMARY

I. One hundred forty-three chronic bedwetters were found in 1,360 children admitted to the Wayne County Training School.

II. One hundred twelve or 78.3 per cent of this group were cured by means of simple calling measures.

III. Eight or 5.6 per cent were cured by means of caffeine at bedtime.

IV. Eight or 5.6 per cent were cured by means of a method intended to give the child an incentive to keep his bed dry.

V. Fifteen or 10.5 per cent, consisting of new admissions and younger children are still under treatment.

CONCLUSIONS

1. Bedwetting is a habit which may usually be controlled by means of a system for calling the child.

2. The child will keep his bed dry if there is sufficient incentive for him to do so.

3. Medical treatment, with the single exception of caffeine, has proved of no value.

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FEDERAL MEDICAL RELIEF AND EMPLOYEES' COMPENSATION

Four million persons have been placed within the last few weeks under the coverage of the Federal Employees' Compensation Act. The mechanism of this new phase of governmental activity is described under Government Services in this issue of *The* sustained in performance of duty, all the four million are entitled to medical and hospital service at government expense. For disability or death result- *Journal.* For every injury and occupational disease ing from such injuries and diseases, they or their surviving dependents are entitled to compensation This army of employees has been hired and put to work, many of them in strange fields, without medical examination or approval. The possibilities of the situation, present and future, require the serious consideration of the medical profession. Under the cover of emergency activities, the government is enabled to undertake actions that would not be assumed in less feverish times without extended hearings by all the elements of the population concerned. Physicians view with alarm this gradual transmutation of medical practice into a function of government bureaucracy. History indicates that measures introduced in an emergency tend to be perpetuated by the bureaucrats developed to make them effective during the emergency. The medical profession requires some assurance that these new invasions of medical practice by the government are to be truly emergency measures in the strictest sense of that term.—*Journal A. M. A.*

THE TREATMENT OF PRIMARY DYSMENORRHEA*

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Primary dysmenorrhea is usually defined as painful menstruation in the absence of any demonstrable pelvic pathology. We realize the difficulty of fixing the line at which the normal deviation of pelvic viscera ends and pathological change begins. Undoubtedly, many of the so-called "functional disturbances" are accompanied by anatomical changes which escape our present diagnostic procedure. However, we assume that uncomplicated retroversion in many young females is physiologic as is also most atresia of the nulliparous cervix, infection being absent. In parous individuals we have not considered small cervical lacerations or erosions pathological if uncomplicated and have also judged slight relaxation of the pelvic floor as normal. The treatment of membranous dysmenorrhea or the rare nasal dysmenorrhea has not been included.

Constitutional factors determine to a large extent whether or not a woman suffers from menstrual pain. As Gellhorn[1] has pointed out, most patients with this disease belong to the asthenic group. He further divides them into the infantile type, characterized by delayed puberty, hypoplastic organs, and nervous instability, and the intersexual type, with masculine hirsutism, long bones, and frequent sterility. The frequency with which constitutional defects are found in these patients would lead one to believe that the ultimate etiological agent must be an endocrine inbalance. However, many women have various degrees of menstrual pain without exhibiting any bodily defect.

Classification in this disease is difficult. Many methods have been advocated and of these the simplest has been chosen. We divide them as follows: First, the obstructive type, usually seen in those young women with small uteri in normal alignment, the cervix long and conical with a pinpoint external os. The pain in these patients begins commonly a day or so before the onset of bleeding, increases in intensity up to the onset, and then is quickly relieved, often with the passage of a few small clots. Secondly, we have the congestive type, characterized by pain that is more often steady than colicky, beginning most often at or just before the onset of the flow and continuing until the period is nearly over. Not all cases will fall into these two groups, but further classification into neurotic, hypoplastic, or constitutional types seems unjustifiable. More important is the question of the origin of the pain. Novak and Reynolds[2] believe it to be in the actual muscular contraction of the uterus and have shown that, in the rabbit, this contraction can be augmented by follicular hormone and diminished by the corpus luteum hormone, progestin.

It has been observed many times that menstrual pain is a relative symptom, depending much upon the psychic pattern of the individual. Granting this, we are still obligated to relieve all severe dysmenorrhea, even though intensive study of the patient indicates that the treatment should be largely psychological. Horney[3] has well shown the psychic background of many menstrual disorders and advises psychoanalysis for its detection. Pratt[4] believes that mental therapy is best for all but the cases due to mechanical obstruction. The difficulties of life are exaggerated for many of these individuals and an improved mental attitude may often turn the balance from inadequate to successful treatment.

Let us consider general measures first. We give much thought to diet even though we have not been able to demonstrate the allergic reactions, described by Rowe,[5] in any of our cases. Obese individuals, generally constipated, are aided materially by a sensible reduction diet and regular evacuations. If the latter can be secured without cathartics less pelvic congestion ensues. A high caloric intake is rigidly ordered for the thin, undernourished women and if this fails to increase their weight small amounts of insulin, ten units twice a day, are used. This

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latter procedure will increase the appetite but we have seen few permanent gains in weight as a result. Faulty posture is an important factor in dysmenorrhea, as shown by Miller.[6] Corrective exercises, although prescribed, have been largely unsuccessful in private practice. Apparently more control of the patient is necessary.

Regular outdoor exercise and sufficient rest are always emphasized. The latter is especially important for those highly emotional women who are chronically exhausted. Often enough they are relieved of menstrual pain during a long vacation in a changed environment, only to have the symptom return when they again take up their regular routine. Tonics are used infrequently because of our persistent doubt as to their real value. Repeated blood studies show a surprisingly high incidence of secondary anemia in these patients and for this we use iron, chiefly Blaud's mass, in large doses over long periods. The newer liver and gastric preparations with iron are used in refractory cases. Focal infection, when encountered, should be eliminated if possible. Much of the above discussion could be dismissed as dealing with routine or supportive treatment. I have chosen to call attention to it because it is exactly that kind of treatment that is likely to be of great value in dysmenorrhea of obscure origin.

The local therapy must consist in bringnig the slight deviations allowed by our definition back to normal. This should be done without surgery whenever possible. However, one should not hesitate to use cervical dilatation, under anesthesia, in patients with obstructive dysmenorrhea. Curettage, a great temptation, is of no additional benefit. A careful examination during the anesthesia is more important. With anteflexion we have tried ivory stem pessaries after dilatation but their potential danger is greater than their value. The question of surgical correction of uncomplicated retroversion is sub judice. All other methods should be tried first. However, two of our patients have been permanently relieved by suspension of the uterus, and in one of these severe vomiting which accompanied the pain was also checked. For those patients with slight relaxations of the pelvic floor following childbirth, supporting pessaries are fitted and given an extended trial if well tolerated. The hard rubber type seems best and the shape may be changed as desired until a comfortable support is attained. Diathermy has been of no value in our hands. Most important of all is the avoidance of meddlesome surgery in these over-operated individuals.

The pharmacopeia lists upwards of a hundred drugs described as useful in this disease and if one cares to delve into folk-lore and superstition, the number of preparations is enormous. Most all are worthless. Belladonna or atropin has been used in a few cases with some success although judgment is difficult because sedatives are usually administered with it. Atropin is best given in doses of 1/150 grain orally and repeated every four hours until pupillary dilatation and dryness of the mouth are present. Belladonna is used in doses of the tincture M x every three hours. We prefer the latter because it seems just as effective and causes less annoyance to the patient. The use of other antispasmodics such as benzyl benzoate or that old favorite, viburnum, has been discontinued. Sedatives must be exhibited often and of these the salicylates or the various coal tar products such as phenacetin or acetanilid are preferable. Acetyl salicylic acid in repeated doses of ten grains will suffice for the mild cases and few untoward results attend its use. More frequently a combination of salicylate and one of the barbital group is prescribed. With these sedation is more marked and of longer duration. We have noticed that the simple, inexpensive products are quite as effective as most of the patented preparations.

If narcotics are necessary to control the pain, as sometimes occurs, codeine is to be used. Large doses may be given and repeated without danger of addiction. It may be used in combination with salicylates if desired. Codeine is best given by mouth even though more of the drug is required. Hypodermics are apt to implant in the minds of these patients the idea that their monthly pain can be relieved in no other way. The use of the opium compounds should be reserved for the cases of intractable pain and then only while waiting more radical treatment.

Endocrine therapy has been used in this disease for many years. Even before the development of the specific hormones now available, good results were frequently reported with the cruder preparations of ovary and corpus luteum. Ovarian residue, ad-

vocated by Graves, was probably the best of these. Of late, they have all been cast aside and attention centered upon the concentrated follicle and anterior pituitary hormones. Theelin, or folliculin, has been of no value in the treatment of dysmenorrhea in our practice. Used intramuscularly, or orally as theelol, it will enlarge the uterus in hypoplastic cases and sometimes bring about more regular periods but no relief from pain has been observed.

Recently Novak[7] has shown that one of the biologic effects of theelin is to augment uterine contractions, while the corpus luteum hormone, progestin, has the opposite action. Theoretically then it would seem logical to increase the supply of progestin in these patients. Since this hormone is not at present available for human use, Novak reasons that the same result may be achieved by administering the luetinizing fraction of the anterior pituitary, or rather its counterpart as derived from the urine of pregnant women. We have used this substance, Antuitrin S, in eight cases since the publication of Novak's report. It probably has some specific action upon the uterine musculature besides its effect upon the ovary. Injections of 1 c.c. have been given at various times during the last two weeks of the cycle and repeated frequently in an effort to decrease the painful contractions at the onset of the flow. So far only one case has responded well. Several have shown large wheals at the site of injection. When administered first at the time menstrual flow and when the pain is greatest, it seemed of slight benefit.

Thyroid substance is given to many of these patients. Doses of ¼ to ½ grain twice or three times a day seem to aid materially the comfort of individuals with a lowered metabolic rate. In cases in which the metabolic rate is normal or elevated results are not so favorable. Its action is probably exerted through the anterior pituitary and thence to the ovary.

So much for the present status of endocrine therapy in primary dysmenorrhea. And now, at the risk of bringing upon myself the criticism I have made of many methods, I wish to present a new and somewhat different idea about this subject. For some time past it has occurred to me that the action of whole posterior pituitary extract in contracting the uterus after the third stage of labor is not as vigorous or as prolonged as the action of the oxytocic factor alone. This latter substance, pitocin, apparently possesses a potency that is decreased or antagonized by some other fraction of the whole posterior extract. With this thought in mind I wondered if the other fraction of the posterior pituitary, the vasopressor substance, pitressin, might not bring about in the non-pregnant uterus a decrease in the excessive contractions that probably cause the cramps of dysmenorrhea. Pitressin was therefore administered to patients with primary dysmenorrhea, the drug being given hypodermically in doses of twenty to forty units (1 to 2 c.c.) at the beginning of and during the period of the pain. The blood pressure was carefully watched during this procedure and at no time was a dangerous rise observed. So far we have used this substance in six cases, far too few to report any definite results. In five of them there has been partial or complete relief from the pain. Immediately after injection one sees a temporary increase in the cramps probably due to the small amount of the oxytocic fraction in the preparation. No other untoward results have been noticed. We expect to continue this clinical study and make an extended report when sufficient cases have been treated to warrant definite conclusions.

There is already at hand some experimental evidence that pitressin will decrease uterine contractions. Reynolds,[8] working with the uterine fistula in the unanesthetized rabbit, has found that pitocin causes a tetanic response in the regularly contracting uterus which is of longer duration than that caused by pituitrin. Further, the tetanic contraction after pituitrin is followed by a period of inactivity lasting for several minutes, while with pitocin the inactive period is not seen and the contraction gradually decreases in amount over a somewhat prolonged period. Reynolds[9] has also recently shown that calcium salts cause a sustained contraction in the rhythmically contracting uterus lasting one to four minutes. The magnesium ion in contrast has a relaxing effect. During these experiments the action of pitressin* and pitocin was observed upon the uterine fistula in a state of contraction induced by calcium. I quote Reynolds as follows, "Three or four minutes after injection of 0.5 c.c. of pitressin the contracted uterus becomes relatively

*The pitressin for this work was furnished by Parke, Davis & Co.

quiescent and is absolutely refractory to subsequent injections of calcium or pitocin unless the uterus is again motile. Moreover, it was frequently observed that pitressin for a time abolished the spontaneous contractions of the uterus and rendered this organ transiently refractory to both calcium and pitocin." At present one may only conjecture whether or not this action will be consistent in humans and, if so, what its value will be.

The present status of therapy is such that occasionally a patient is seen with incapacitating pain entirely unrelieved by any of our available methods. If the patient is past middle age it is usually best to advise radiation sterility for permanent relief. We prefer x-rays to radium for this purpose. I doubt if this procedure is ever justified in a young unmarried woman. Pregnancy so often relieves the condition that it is much better to wait until long after marriage before advising such radical therapy.

SUMMARY

1. Primary dysmenorrhea is probably a symptom of an underlying constitutional defect.
2. The medical treatment, and such surgical treatment as has been advocated, often fails in severe cases.
3. Endocrine therapy, now only approaching a scientific basis, may be of much value in the future.
4. The experimental results of pitressin administration justify further study of this substance in dysmenorrhea.

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AUTONOMIC NERVOUS SYSTEM IN ITS RELATION TO THE OPHTHALMOLOGIST AND OTOLARYNGOLOGIST*

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The original purport of this paper was to have been a review of the literature concerning the relation of the autonomic nervous system to our special branch of medicine. Illness having prevented, I must apologize for the incompleteness of the review. However, if I can stimulate a discussion on the clinical findings in our field, I will feel gratified.

Disturbances in the balance of the autonomic nervous system would include such conditions as endocrine dysfunction, allergic reactions, asthma, protein sensitization, angiospastic conditions, certain skin and mucous membrane changes as urticaria, scleroderma, angioneurotic edema, eczema, atrophic rhinitis, etc. If these could be correlated in terms of the autonomic nervous system it might help us in future basic underlying principles in their management and treatment. The best working basis we have at present is by the determination of whether there is a predominance of symptoms of one or the other antagonistic groups, so called, vagotonia or sympatheticotonia.

Our present knowledge of the autonomic nervous system has been concisely summarized by W. K. Livingston, who states that, "In spite of the present confused state of knowledge in this new field of study, evidence is accumulating that in the region of the hypothalamus there are visceral centers exerting a control over water balance, the metabolism of fats and sugars, vascular adjustments (perhaps even the activities of capillaries and sweat glands), regulation of temperature, and a balanced control of

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glandular secretions and smooth muscle tonus changes in the internal organs. Evidence is accumulating to indicate that the visceral nervous system, which is the intricate network of neurons by which these activities are affected, regulates and, in turn, is affected by the P_H of body fluids; influences and expresses the activities of certain glands of internal secretions; controls the mobilization of leukocytes and other cytologic defense mechanisms; has some relation to the formation of antibodies, and is important in those changes associated with protein sensitization and anaphylactic shock."

In the study of the autonomic nervous system such men as Langley, Cannon and Brown early differentiated the two antagonistic groups of fibers. The parasympathetic group is made up of fibers accompanying the third, seventh, and ninth cranial nerves. It includes the vagus nerve which constitutes the major portion of this group and because of the similarity in action includes, also, those fibers accompanying the sacral nerves. For this reason it is called by some the craniosacral group.

Their antagonist, the sympathetic group, is composed of pre- and post-ganglionic efferent fibers from the first thoracic to the first lumbar segments inclusive communicating with the somatic nerves through the white and grey rami communicantes. The upper fibers pass into the neck to form the cervical sympathetic ganglia. The largest or superior cervical ganglion continues on through the carotid plexus to its extensive distribution in the head.

These research workers have shown how the autonomic nervous system is really a part of the central nervous system situated outside of the cord. Its purpose being for quick dissemination of impulses in states of fear, etc. It is primarily a defense mechanism for quick action, differing from the slow segmental reflexes of the somatic nervous system. This is aided by its multipolar neurones.

With the use of such drugs as nicotin, muscarin, pilocarpin, ergotoxin, atropine, etc., they have shown experimentally the antagonistic action of the two groups of fibers. A predominance of action of one gives rise to symptoms of vagotonia and of the other to sympatheticotonia. The following are some of the symptoms of vagotonia (Crile Clinic):

Eye:
- narrow palpebral fissure
- blepharospasm
- infrequent winking
- enophthalmus
- epiphora
- accommodation spasm

Skin:
- hyperhidrosis
- dermatographia
- acne

Respiratory system:
- irregular respiration
- bronchial asthma
- laryngospasm
- husky voice

Circulatory system:
- arrhythmia
- bradycardia
- eosinophilia

Nervous system:
- insomnia
- mental irritability
- easily fatigued

Metabolism:
- increased sugar tolerance
- increased fat tolerance
- status thymolymphaticus

SYMPATHETICOTONIA SYMPTOMS

Eye:
- mydriasis
- myosis on forced inspiration
- myosis on forced expiration
- wide palpebral fissure
- winking reflex diminished
- prominence of eyball
- faulty convergence

Skin:
- urticaria
- angioneurotic edema
- facial pallor on emotion
- hypohidrosis
- pigmentary anomalies

Respiratory system:
- dyspnea
- tachycardia

Circulatory system:
- palpitation
- exaggerated amplitude of cardiac contractions
- pulsation of superficial vessels

Nervous system:
- neuroses
- psychoses

Metabolism:
- low sugar tolerance
- alimentary glycosuria

In determining the status of these individuals the physical findings and history give valuable information: evidence of endocrine dysfunction (the robust as opposed to the asthenic type), basal metabolism, glucose tolerance, history of any of the following: arthritis, asthma, eczema, urticaria, food idiosyncrasies, hay fever, angioneurotic edema, vasomotor rhinitis, peptic or duodenal ulcer, mucous colitis, spastic colon, angiospasms (migraine, tic douloureaux), cardiac arrythmia, constipation or diarrhea, polyuria, dizziness, lethargy, flushing of skin, etc.

The method of determining whether there is a positive sympatheticotonia as carried out by the Crile Clinic is by the injection of ½ c.c. of 1:1,000 adrenalin subcutaneously. If there is a 10 point rise of pulse for 1 hour and at least a 10 point rise in the systolic blood pressure and a corresponding drop of the diastolic pressure for the same period of time the test is considered positive. Other factors such as increased respiration, skin flushing, hidrosis, tremor, etc., are also taken into consideration. There is no satisfactory test at present for vagotonia.

Considering the causes for an unbalance of the autonomic nervous system let us take first endocrine dysfunction. The glands that stimulate the sympathetic, according to Simpson, are the thyroid, suprarenal and pituitary. Those inhibiting are the thymus, pancreas and parathyroid. Hormone activation of the endocrine glands is produced by every mental activity and emotional state as well as by physiological and pathological changes in the body. It is not surprising, therefore, that an unbalance should develop especially when the autonomic system is intrinsically instable. There is an attempt on the part of the glands to compensate when affected. And frequently there are symptoms of vagotonia in one part of the body and sympatheticotonia in another.

In reviewing the literature of the endocrines relative to ophthalmology and otolaryngology there is very little referable to the latter. Weiner has given some valuable data concerning the eye. Taking the glands separately he has shown that the most studied has been the thyroid, especially in regard to exophthalmic goitre. In this condition there is an increase of the fat in the orbit. Exophthalmus may develop after as well as preoperatively. Reudemann states that exophthalmus is relieved in not more than 2 per cent of the cases. VanGraefe's or Stellwag's sign is usually present. Convergence insufficiency is an early sign (25 per cent). Moist palms, active pulse and tremor may also be present. Complications such as drying of the cornea and paralysis of the sixth nerve may develop. Parathyroid tetany may develop following thyroidectomy. This may be manifest in the eye by acute ciliary spasm followed by posterior lenticular changes and cataract. To prevent this it is advisable to see that the patient has a normal blood calcium before operation. Hypothyroidism is usually associated with a minus basal metabolism rate and low sugar tolerance. Ince reports that in progressive myopia stretching of the sclera is due to a lack of adrenalin. Irregular cornea and hemorrhage in the vitreous with calcium deficiency have been attributed to hypothyroid.

Pituitary dysfunction: The most frequent symptoms from this are produced from pressure on surrounding structures, blockage to the flow of cerebrospinal fluid, variable field changes from the same cause, enlarged blind spot, nystagmus, blue sclera, choroid disease and yellow optic disc. The anterior and posterior lobes may enlarge in pregnancy.

Gonad dysfunction: There may be a contraction of form and color fields in pregnancy, blurring and specks in the eyes, neuritis and papillitis, conjunctival pigmentation, subconjunctival hemorrhages with menses. Weiner reports choroiditis and amblyopia with masturbation.

Spleen: May give scrofulus iritis.

Pancreas: Myopia may develop in diabetes due to water and sugar retention; ocular palsies such as diplopia with involvement of the sixth nerve may occur. Some report glaucoma as due to endocrine dysfunction.

From the standpoint of the ear Gotlieb reports a number of cases of deafness due to adrenalin deficiency.

Another large group of symptoms to be considered in a labile autonomic system are those due to allergy. Lemoine includes as cases of allergy: sympathetic ophthalmia, parenchymatous keratitis, phlyctenular conjunctivitis, and spring catarrh. He links up most ocular anaphylaxis with disturbed endocrine balance. Hensel, in a very comprehensive report of allergy in the nose and paranasal sinuses, though he gives many factors in the etiology, does not mention endocrines. Skin tests are only an aid in the diagnosis of allergy, for, as Feinberg states, "Negative skin tests do not necessarily mean an absence of sensitization to these substances. And positive tests do not necessarily indicate the cause of the clinical symptoms." With our limited knowledge of allergy, I do feel that the various syndromes could not be satisfactorily grouped as to their reaction from the standpoint of the autonomic system such as vagotonia or sympatheticotonia.

I became interested in this subject while

giving a series of non-specific protein injections. I felt that possibly the results from the foreign protein were due to the reaction on the autonomic system. There seemed to be a better response in some cases with an allergic history. The most satisfactory results were in ocular conditions using typhoid vaccine intravenously as used by Dr. Howard. After hearing a talk by Dr. Peete in which he states that intravenous typhoid vaccine gave a temporary paralysis of the sympathetic system, I concluded that this may be an important factor in all non-specific protein therapy and especially the improvement in ocular conditions. Without being in a position to substantiate this theory experimentally, I merely state my feeling is that the autonomic nervous system plays an important role in foreign protein therapy.

There are a number of other conditions of local disturbance of the autonomic system which because of our meager knowledge of the subject I will merely mention: sphenopalatine neuralgias, migraine, allergic headaches, atypical facial neuralgias which are not relieved by surgery on the gasserian ganglion. Some authors have tried to explain them on the basis of angiospasm, others on the basis of degenerative changes in the sympathetic ganglia. Sluder has given us an impetus for study along these lines.

In this whole group of conditions one must naturally be impressed with the necessity for a careful history and examination especially relative to allergy and endocrine dysfunction. Treatment at present is based on the removal of these causative factors. Surgery in the nose should only be with the idea of improving the ventilation unless infection is the allergin. Foreign proteins should have a place in our therapy, especially in ocular conditions.

In conclusion, I feel that it would be to our advantage if we could classify the various conditions pertaining to an instable autonomic nervous system in terms of the autonomic system. In so doing it may lead to certain basic principles of therapy that would be valuable in a field that is at present in a very confused state.

SURGICAL JUDGMENT

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While we have long known that experience is the best teacher, we must consider from time to time whether the experience gained is used as profitably as it should be. There are many problems in surgery that require all the art and science procurable. Experience teaches us that perhaps physicians as a whole are at times neglecting the use of the senses in arriving at a diagnosis; using the newer laboratory methods, or accepting data which may be misleading. It is easier to call upon the laboratory for information which could be obtained by careful history taking, and painstaking thorough examination. The physician who relies on laboratory data, easily obtained for him, as the means to a correct diagnosis without careful examination of the patient, will have many sorrowful experiences at the expense of his patient. Both in the hospital and also in private practice there is a tendency to make diagnoses without securing sufficient information. A good subjective history with definite knowledge of the patient's habits, work and environment, would in many cases aid in making a correct diagnosis. When an office patient makes more than one visit for an examination, recheck of the clinical history is essential, in order that certain details which were at first overlooked may be brought out. As the disease progresses impressions made at first examination must necessarily be changed. In history taking the mental attitude of the patient toward his symptoms may well be studied. Symptoms which appear most outstanding in the mind of the patient are often most trivial after complete examination. For example, female patients frequently consult the surgeon with symptoms referable to the pelvic organs, as bearing down sensations, disorders of men-

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struation, lassitude, nervousness, etc. They have been informed that a laceration of the cervix or perineum, or perhaps a moderate prolapsus, is causing the disability. The history then would locate the pathology in the pelvis, and while many of these patients have disorders of their pelvic viscera, examination often reveals well marked primary hyperthyroidism, adenomatous goiter or marked visceroptosis. Physicians should exercise great care in the handling of individuals who upon first examination have well marked symptoms of hyperthyroidism, but who, upon careful check up later, show evidence of a condition known as cardiovascular asthenia. While these patients may have symptoms of dysthyroidism the difficulty is usually due to constitutional or endocrine dyscrasia. Patients with cold hands or feet even in the presence of some hyperplasia of the gland should seldom be subjected to surgery. Cases of true hyperthyroidism are greatly improved by the administration of small doses of Lugol's solution and phenobarbital over a period of a few weeks, whereas the cardiovascular asthenic patient shows little or no beneficial effects. It will be well to remember that neither the metabolic rate nor the size of the gland are an index of the relative toxicity of a diseased thyroid.

Often the patient tells the attending physician that he wishes to determine the cause of his fatiguability or loss of weight, thus presenting himself for a partial or limited examination only. It is necessary then to convince him of the importance of a complete physical examination, and to secure his coöperation to obtain adequate laboratory information, such as, urinalysis, blood count, blood Wassermann, and necessary roentgenological studies. The source and reliability of all laboratory data should be carefully investigated. At times physicians obtain data about x-ray examinations which they may not understand. A short concise report is most desirable.

A correct diagnosis, then, is of the utmost importance, and when it can be obtained, it is of greatest value, both to the patient and the surgeon before operative procedure is undertaken. Major surgical operations are no longer a one man task. Only the best results will be obtained by the team work of well trained hospital personnel and assistants.

It is essential to know when a goiter patient is fit for surgery. Set rules have no place in this matter. Many goiter patients with the same relative degree of hyperthyroidism react differently to operation. The moderately severe hypertensive individual with a goiter should have careful preoperative medical care. These patients often have an accompanying well marked myocarditis, and many give a history of having been on digitalis medication for some time. This factor is an added risk to this type of case.

Post-operative care as well as attention to detail will lessen the danger and reduce both the morbidity and mortality in this type of operation. The following post-operative measures should be carried out. 1. Subcutaneous saline for a period of at least twenty-four hours. 2. Fluids freely by mouth. 3. Lugol's solution mm. 10 to 15, three times a day by mouth. We have found it advantageous to add 20 mm. of Lugol's solution to the first 1,000 c.c. of saline given subcutaneously. 4. Luminal, grains one-half every six hours, morphine as necessary to control pain.

Cancer of the breast is on the increase, and all lumps not due to lactation should be regarded with suspicion. Tumors of the breast should not be removed under local anesthesia as an office procedure. Unless the tumor is a small movable fibroma the patient should be sent to the hospital and under gas anesthesia the suspected tumor should be completely removed and sent to the laboratory for immediate microscopic study. Should it prove to be malignant radical procedures may be instituted at once.

Operation is seldom advisable as an emergency procedure in bleeding from suspected ulcers of the gastro-intestinal tract. Of special importance is the medical management of such patients, which included the following: 1. Absolute rest in bed. 2. Nothing by mouth. 3. The administration of subcutaneous saline, over a period of several days. 4. The administration of intravenous dextrose and sterile distilled water daily. 5. Small repeated blood transfusions. 6. Large doses of morphine.

Likewise operations on the biliary tract are seldom emergencies, and adequate time may be profitably spent in properly preparing these patients. The patient with empyema of the gallbladder is usually improved by the use of massive hot packs over the liver and the administration of dextrose in-

travenously. Under these circumstances operation can be safely deferred as long as such improvement continues. If, however, the patient does not respond to the above treatment after twenty-four hours, most conservative surgery under local anesthesia should be performed. Extended operations in the jaundiced, obese or hypertensive individual should always be avoided, if possible. Of course, surgical procedures should be instituted before complications arise.

The Levine tube introduced through the nasal route is a most valuable adjunct in operations of the intestinal tract. One should not wait for vomiting, dehydration or symptoms of collapse before instituting this type of therapy. By its use we are able to both empty the upper intestinal tract and administer, through it, saline and dextrose at regular intervals.

Thousands of cases of early acute appendicitis are operated annually, with an unusually low mortality, whereas, the late complicated case requires skillful surgery and careful post-operative management. The patient seen late in the disease with local abscess formation of several days' or weeks' duration should be treated most conservatively.

In cases coming to the hospital with very marked distention and with fast pulse, with or without cyanosis, medical treatment is often advisable for a few days rather than any type of operation, as these desperately sick patients will not stand any type of operation, but may after a few days of medical treatment, consisting of large hot packs over the abdomen, daily intravenous dextrose solution, use of the Levine tube, nasal method, to empty the stomach and upper bowel, with morphine if necessary, become good risks. After a few days of such treatment, improved conditions sometimes make it seem advisable to postpone any surgery. In many such cases it is well to postpone surgery for a period of weeks or months, allowing the patient to leave the hospital and return at a later date for his operation.

We are quite convinced that this is the only method of procedure in a great many cases, especially in patients over fifty years of age, and those who are obese. When operation is performed in fairly early cases of acute diffuse peritonitis as found with gangrenous perforative appendicitis, we advise good sized incision; and while we may use a soft rubber dam for drainage no gauze or drainage tube should be used, but the wound should be left entirely open, allowing, if possible, a small portion of the omentum to come up just outside the peritoneum. It is surprising how well these patients will do, and then later the wound may be closed by secondary suture.

Experience has taught us that unless the appendix can be readily removed, it is wiser to drain the abscess cavity. Searching about the pelvis for the remnants of a ruptured appendix breaks down Nature's protective barrier; as stated above, in many instances it is safer to merely drain the abscess and make no attempt to close the wound, but to do a secondary closure. No attempt should be made to invert the stump in cases of perforative appendicitis.

Operations should be avoided, of course, in spreading peritonitis, because of the danger of extending the infection. Absolute rest in bed, placing the patient in Fowler's position, the use of the Levine tube, hot stupes over the entire abdomen, and adequate doses of morphine are most essential in the handling of these desperately sick cases. We have found that the use of foreign protein such as sterile milk given intramuscularly is a valuable means of increasing the patient's resistance. We also think that it is very important that a prophylactic dose of mixed tetanus gas gangrene serum be given in every case of peritonitis due to appendicitis or intestinal obstruction. In diffuse peritonitis following septic abortions we have found that repeated small blood transfusions (200 to 300 c.c.) are of extreme value, and advise against any surgical measures in these patients when accompanied with high fever and distention. Treatment of the peritonitis should be the same as in any diffuse peritonitis. We advise against the use of ice over the abdomen in any form of questionable peritonitis. If ice is used it masks the symptoms, lowers the local and general resistance of the patient and retards leukocytosis.

After a diagnosis of pelvic tumor has been made, operation may or may not be advisable, depending upon the patient's general condition, age, weight and so forth. Many symptomless fibroids discovered during routine examinations may need no operation. Ovarian tumors often are malignant, or become malignant, whereas dermoids have a tendency to degenerate or their pedicle may become twisted. Uterine tumors,

accompanied by hemorrhage, should always be regarded with suspicion. It is important to determine whether the bleeding is due to polypoid endometritis, chronic pelvic inflammatory disease, submucous fibroid, or carcinoma. This can be readily determined by a dilatation and curettage. A biopsy should precede a hysterectomy in patients with menorrhagia or metrorrhagia. The routine use of x-ray or radium we feel is dangerous. We prefer radium to x-ray therapy, because of the importance of curettement for biopsy before its use. Many cases of severe menorrhagia and metrorrhagia may be controlled by radium, after which the menses may become normal and pregnancy may follow.

Operation is advisable in the nodular type of fibroid on account of the danger of degeneration and malignant change. Patients with polypoid endometritis or small fibroids do extremely well with a curettage followed by radium therapy. We believe that supravaginal hysterectomy is the operation of choice when bleeding occurs in chronic inflammatory disease and nodular fibroids. In carcinoma of the fundus uteri, complete hysterectomy is advisable. At times myomectomy for fibroids can safely be performed in individuals under thirty-five years of age. During a routine hysterectomy, the question of removing the ovaries often arises. It is our opinion that the ovaries should not be removed except in cases of well marked pelvic inflammatory disease or malignancy. If an old endocervicitis or laceration exists it is safer to perform a complete hysterectomy and thus prevent the possibility of malignancy developing at the site of an old source of infection.

All pelvic tumors, whether of uterine or ovarian origin, when removed should be examined grossly by the surgeon. This macroscopic examination should be checked by the pathologist as early as possible. Often malignancy is discovered at this time, which of course necessitates the surgeon changing the operative procedure. Thus, the importance of routine frozen sections of all tissue removed cannot be overemphasized.

Operations on the kidney and prostate are seldom emergencies. Rupture of the bladder should be suspected in individuals with multiple fractures of the pelvis. The finding of bloody or scanty urine should make one suspicious. Traumatism should be avoided. If a small soft rubber catheter cannot be easily introduced into the bladder, suprapubic drainage under local anesthesia should be resorted to at once. All such cases should be submitted for careful cystoscopy when circumstances permit, in order to determine the extent of bladder or kidney damage as well as to obtain knowledge of kidney function. The importance of consultation with an experienced urologist cannot be overemphasized.

Patients suffering with disease of the genito-urinary tract should be studied by the internist, urologist and surgeon in conjunction with all the information the laboratory can offer.

The opportune time to operate a patient suffering from hypertrophy of the prostate is a debatable question. We believe that a progressive inability to empty the bladder, a residual urine of from 20 to 100 c.c.; dribbling of urine; backache and evidence of chronic cystitis are all indications of prostatic hypertrophy. Before such individuals are subjected to surgery a careful urological examination as well as roentgenological examination is most desirable. The genito-urinary tract, lungs and long bones should be rayed for evidence of metastases. Many hypertrophied prostates considered benign by the examiner often are found to have metastasized to the lung or long bones. In the two stage operation we feel that the suprapubic cystostomy is preferable to the indwelling catheter as a first-stage procedure. Many old and debilitated patients can be made good risks by careful pre-operative medical treatment. We feel that the two-stage operation is the safest, and advocate waiting from two weeks to several months before advising any second stage operation.

It seems hardly necessary to say that many of the beneficial results of surgery in the sick will be lost without the careful following up of good post-operative management.

In diagnoses every important symptom should be carefully followed, and thorough examination insisted upon. Not only is it necessary for the patient's welfare that all laboratory work be done which would be of benefit to him, but it is also of the utmost importance to call in as consultants our colleagues in the laboratory, internists, roentgenologists or those qualified in the different specialties, so that all of us may have a proper part in accepting responsibility. It goes beyond question that all concerned, especially the patient, will benefit by such procedure.

AN OBLIQUE FRACTURE THROUGH THE HEAD OF THE FEMUR WITH POSTERIOR AND UPWARD DISLOCATION OF THE SHAFT—ITS TREATMENT BY THE CLOSED METHOD

A CASE REPORT

FRANK MACKENZIE, M.D.†
DETROIT

Mr. M. L. B. was admitted to the Redford Branch of the Detroit Receiving Hospital, September 3, 1933, following a head-on automobile collision in which both machines were travelling at a high rate of speed. On admission to the hospital he was garrulous, disoriented, in shock and suffering from a severe concussion. He was 47 years of age, weighed 240 pounds and was over 6 feet in height. No one was able to give a satisfactory explanation of the accident except that when rescued he was half standing behind the wheel with the floor board gone and the motor resting against his legs. Previous to the injury his general physical condition was excellent. Examination revealed a four-inch laceration over the frontal region with a raised periosteal flap; a fracture of the 6th right rib, numerous abrasions and lacerations over the body and an apparent fracture in the region of the left hip. First aid was efficiently rendered at the hospital. The following morning, a portable x-ray of the left hip showed as follows: "A study of the pelvis reveals an oblique fracture through the head of the femur with the tearing off of a portion of the posterior rim of the acetabulum and upward and posterior dislocation of the remaining portion of the head of the femur and the shaft."

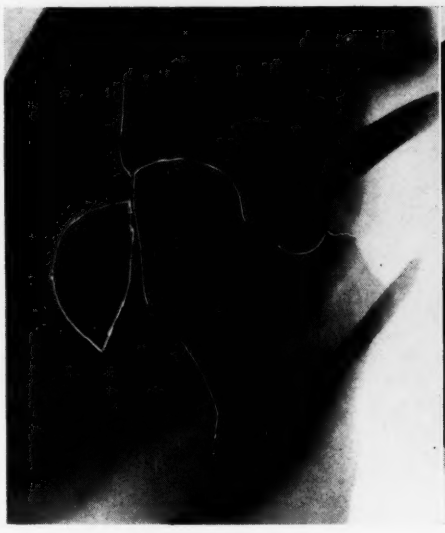

Fig. 1. Relation of the fragments at the time of the accident.

Fig. 2. Repair complete.

Following this x-ray finding and pending the outcome of his cerebral and other injuries, a Thomas splint with extension was first applied to the left leg but it was soon found to be unsatisfactory due to his extreme restlessness, incontinence and the beginning of pressure necrosis. It was found better to apply a Russell extension with abduction. Restraint increased his excitability so that wrist bands were used. An x-ray check three days later showed slight improvement in the position of the fragments but further extension was indicated.

On September 11, the case was further complicated by pneumonia which developed at the base of the left lung. At this time the patient became very unmanageable and several times worked the extension loose. The extension with a 22 pound weight was re-applied and the patient again restrained.

The x-ray findings as of September 19 are as follows: "The left hip region has been examined stereoscopically. There has been perfect approximation of the fragments of the femoral head and there are apparently normal relations of the femoral head and the acetabulum. The only abnormality noted is a small bone fragment immediately opposite the upper acetabular region. We think this is of no immediate clinical interest."

The pneumonia meantime having cleared, the question now arose as to the best procedure to follow in order to keep the fragments approximated. We felt that we had been so fortunate in being able to keep the fragments approximated up to this time that an open operation with excision of the fragment, reposition of the remaining portion of the head into the acetabular cavity with resultant ankylosis and shortening was not to be considered. If necessary, this would be done when his other complications had cleared away.

He remained very unmanageable and disoriented in this extension until October 6, when a double Spica body cast was applied. X-rays following the application of the cast showed the position of the

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fragments unchanged. The following day he was sent to his home by ambulance.

As his cerebral symptoms began to improve it was thought advisable to remove the cast in an endeavor to quiet him. This was done November 11. For the next two weeks he remained comfortably in bed, his mental condition rapidly returning to normal. Light and heat therapy with passive motion, gentle massage and full doses of calcium were given at this time. After a few days' preliminary skirmishing he was placed in a wheel chair, then on crutches, and was downstairs November 25 for dinner. A walking caliper was fitted at this time but proved so uncomfortable it was discarded. On December 25, fully dressed, he went for a long drive.

Portable x-ray findings as of January 2, 1934, are as follows: "Re-examination, stereoscopically, of the left hip joint shows the head of the left femur to maintain its normal anatomical relation to the acetabulum. The fracture line through the femoral head at this time is not visible. The film taken of the left hip and compared with the right hip shows no difference in the appearance of the two hips except very slight demineralization of the left femoral shaft which is secondary to the immobilization. In conclusion: Normal anatomical relations of the left femoral head to the acetabulum. The fracture line is not visible at this time. It has apparently healed completely."

After this report it was difficult to restrain him. He started back to his office January 2, discarding his crutches January 15 and his cane February 1. He began driving his own car about this time and by March 1 his activities were apparently as strenuous as before his accident.

Fractures of this particular kind are exceedingly rare, as a search in medical literature reveals, and when they do appear, an open operation is usually indicated. The illustrations show the nature and extent of the injury, as well as the final result by means of abduction and Russell extension.

PREVENTION OF COMPLICATIONS IN THYROID SURGERY

Arnold S. Jackson, Madison, Wis., states that an error in judgment in thyroid surgery either at the operating table or later may be responsible for the development of complications that greatly alter mortality statistics. Although such a mistake may not result in the death of the patient, it may change his whole future health and welfare. The author gives a list of the complications following thyroidectomy and divides them into three classes: immediate, delayed and remote. Few surgeons performing any number of thyroidectomies have avoided injuring one or even both nerves at some time in their experience. The greatest care should be used in placing hemostats on the lower lateral and inferior poles preparatory to resecting the gland. The failure of the surgeon to place his hemostats sufficiently high on the lateral walls at the start accounts for the majority of complications in thyroid surgery. If the gland is resected from within, leaving only a thin but sufficiently deep outer shell, not only will injury to the nerve be avoided but hemorrhage from within the capsule will be controlled. Serious bleeding from within the capsule can be controlled with the index finger pressing upward and inward along the lateral border of the gland. Injury to or collapse of the trachea may be avoided by careful and not too rapid dissection in a dry field. The absence of valves in the thyroid veins and their tendency to remain patent makes it important to ligate every vessel carefully, preventing air embolism. Proper preoperative preparation should avert acute hyperthyroidism. Complications due to anesthesia can be eliminated by using the superficial nerve block method with the preoperative use of 10 grains (0.6 gm.) of sodium barbital. Leaving a sufficient shell of gland and capsule will prevent tetany. Hemorrhage the second or third day, however, is the result of improper hemostasis. Sufficient iodine by mouth, by duodenal tube, by rectum or by vein, fluids, ice bags, sedatives, oxygen, good nursing and psychology will usually control hyperthyroidism. Tracheitis is prevented by a careful operative technic in avoiding trauma of any sort to the trachea and by the use of a steam tent, codeine and atropine. In cardiac failure some authors believe that they have saved many lives with digitalis; Plummer and others feel that they have saved lives by not using it. Wound infection is less often seen when no drainage tube is used. Temporary involvement of the nerve may occur as a result of edema of the tissues or trauma. The oxygen tent or a nasal catheter connected with an oxygen tank is indicated in tracheal obstruction and anoxemia. The treatment of mania and psychosis is largely that of a psychosis from other causes. The avoidance of postoperative shock has been ably elaborated on by Crile. All goiter patients should be examined preoperatively for the possibility of glycosuria as a true diabetes, but more often an acute glycosuria will be precipitated by thyroidectomy. The author has seen tetany develop as late as eight months after thyroidectomy. In burned out cases of exophthalmic goiter or in advanced toxic adenoma, cardiac failure is apt to occur in from one to five years following thyroidectomy. To prevent persistent and recurrent hyperthyroidism, a careful postoperative regimen should follow, with iodine for six months, high caloric diet, permanent restraint from stimulants and proper rest. Likewise, in all cases of exophthalmic goiter, septic tonsils, if present, should be removed some months after thyroidectomy. Electrosurgery, however, has been the most important factor in overcoming this most serious indictment of thyroid surgery.—*Journal A. M. A.*

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EDITORIAL

HOSPITAL INSURANCE

The Board of Regents of the American College of Surgeons is reported as placing itself on record as favoring hospital insurance with certain restrictions. The board, for instance, does not favor the management of insurance funds for the profit of promoters or lay agents. There, furthermore, must not be anything that will interfere with the free choice of physician by the patient who carries hospital insurance. It is further specified that hospital insurance must accord with medical ethics. That must mean, among other things, that hospitals refrain from practice in competition with the independent practicing physician. Hospitals enjoy certain advantages that private physicians do not, among them tax exemption, endowments and immunity to malpractice suits. Hospitals which desire to be fair with the medical profession will not include as inducements for insurance, laboratory, medical or surgical service.

Hospital insurance has much in its favor, for often the smallest item in the so-called cost of medical care in illness severe enough to require hospitalization is the doctor's or the surgeon's fee. Were the burden generally borne as it would be under an adequate plan of hospital insurance, the cost of confining illness to the individually insured patient would be materially reduced.

Many members of the medical profession are wont to view health insurance with certain apprehension, however, fearing that it may be the entering wedge to something that may not be in the best interests of those concerned. They feel that voluntary insurance may be the forerunner of compulsory insurance. However, insurance is apt to be a practice indulged in by the more prudent, as it always has been in the past. The majority will doubtless take a chance on not requiring hospitalization as they neglect insurance in other matters.

BRAIN TRUST

This term as used by the daily press is not meant to reflect credit on the President's disposition to seek trained counsel or advice wherever it may be obtained. It is somewhat puzzling that an enlightened press should assume such an attitude. Progress has been the result of strenuous study and research. The automobile and the aeroplane and in fact almost every other highly developed mechanism or process, chemical, physical, even today's medicine and surgery, are the result of the efforts not of mediocrity but men of the same mental calibre as those who are advising in the various departments of the government. They are really "brain trusters" in science. The greatest service a man may render his generation is to take what has been hitherto a terminus or a blind alley and make of it a thoroughfare. That is what the research scholar is doing.

As a nation we believe in education. Sometimes we are apt to go a little too far with our faith in what might be called mass education. There are doubtless many seeking college training who are maladjusted and who will fail to make good when they are thrust upon a hostile world. This fact, however, should not constitute an argument in favor of mediocrity. There are many trained thinkers in the nation. Why should any one disparage the tendency to look to them for advice if not guidance?

As a profession modern medicine tries to learn from those best qualified to teach. That is what post-graduate instruction really means—namely recognition of the best brains in medicine. The matter of government is as complex as the body of knowledge that makes up every one of the various sciences. It requires as much effort and as keen acumen to master its principles as any one of the various sciences. In a complex

society it is more scholarship rather than less that is required if democracy is to yield its best.

A wise man is one who will seek advice from experts and then correlate it to his own knowledge and understanding. We have complained from time to time of the mediocrity of many men who represent us in the various forms of government from municipal to national. The so-called "brain truster" is the opposite extreme. However, he is not representing the nation. He is simply giving of the results of his research and study much as the physical scientist aids industry. This is not an argument for bureaucracy or for the regimentation of industrial or professional life, which the writer does not favor; we believe that the upmost good can come only by the greatest freedom consistent with the rights of others.

MADAME CURIE

The death of Madame Curie on July 4 removed one of the greatest research workers in a field outside of medicine but which has been of inestimable value to medicine for nearly a third of a century. Her name will be forever associated with the discovery of radium, which has been such a valuable agent in the treatment of malignant disease. The last decade of the nineteenth century witnessed discoveries that were in a short time to revolutionize the science of physics. But we are here concerned with the effect of such discoveries on medicine.

In 1895 Roentgen discovered the x-rays. A few weeks following Roentgen's discovery, Poincarê, the French scientist, felt that since fluorescence within a glass tube appeared to be a necessary condition for the production of x-rays, it would be interesting to study the similar phenomenon of ordinary fluorescent or phosphorescent substances. Henri Becquerel, another French scientist, undertook the problem, beginning fortunately with uranium compounds, the double sulphates of uranium and platinum, which were markedly fluorescent. After a number of carefully planned experiments it was found that the fluorescence had a chemical effect on sensitive photographic plates similar to that produced by the newly discovered x-rays. The new light became known by the name of the experimenter—Becquerel rays. These studies were made during the years 1896-7.

Taking a cue from the work of Becquerel others took up the work with uranium salts. Chief among such research students was Marie Sklodowska (Curie), of Polish birth, who was afterwards married to Pierre Curie, a French physicist. The husband turned aside from his researches on the properties of crystals to coöperate with his wife in her work on radioactivity and as a result we have the discovery of radium. The story is admirably told by Glasser in "The Science of Radiology."

Madam Curie continued her researches until her later years when, like many other pioneer radium and x-ray workers, she fell a victim of the therapeutic agent she did so much to develop.

FRACTURE OF THE SCAPHOID

The carpal scaphoid is a small bone but it occupies a strategic position in human anatomy. It is a question whether the importance of fracture of the scaphoid or navicular (both words mean "boat-like") bone is fully realized by many. Often if there is no marked deformity following injury to the wrist, the condition is diagnosed as a sprain without any x-ray examination being made. The end-result is apt to be very disappointing to the patient.

The bones of the wrist receive their blood supply from terminal branches of the radial and ulnar arteries. The scaphoid is a somewhat irregular "boat-shaped" bone, as the name implies, made up largely of cancellous structure with a thin cortex. The articular surfaces are in contact with cartilage and the other surfaces are rough for the attachment of tendons and ligaments. When injured the scaphoid is apt to be broken rather than dislocated. To function normally the wrist has great latitude of motion, practically all the movements of all kinds of joints except rotation. When fractured there is often interference with the blood supply with the result that the bone becomes necrosed. The pathology may extend to other parts with resulting limitation of motion and with pain.

Burnett* stresses the importance of early diagnosis by x-ray examination of all wrist injuries, and, where a diagnosis of fracture of the scaphoid is established, immobilization and rest should be secured to obtain bony union if possible. This should contin-

*Burnett, Joseph H.: Fracture of the (navicular) carpal scaphoid. New England Journal of Medicine, July 12, 1934.

ue according to this writer for a period of six weeks. A plaster of Paris cast is preferable to splints. Following the immobilization period the wrist should be massaged. He applies the cast with the wrist in the cock-up position with slight radial flexion. The six weeks period of rest is emphasized to facilitate repair of blood vessels and restoration of the circulation as well as for repair of the torn ligaments.

In cases in which there is marked separation or comminution of the fragments Burnett advocates surgical removal of part or all of the bone.

Then he goes on to deal with cases which have been unrecognized and therefore improperly treated until considerable time has elapsed following the original injury. Opinion varies in regard to method of handling such cases. Some surgeons advocate removal of the fragments. Many others would leave well enough alone.

The disappointing results which frequently follow injury of the scaphoid bone demand a careful study, preferably x-ray examination of all wrist injuries; it should be a routine procedure also in all Colles fractures.

HISTORY OF ANATOMICAL INJECTION*

The two periods of greatest advance in human anatomy have been associated with the Post-Vesalian dissectors and with the achromatic compound microscope. During the first period, the injection of vessels and hollow organs with colored masses was the outstanding research method beyond the use of the scalpel and probe. In the latter period, injection has provided not only a useful didactic tool, but also an important method in the development of microscopic anatomy.

By means of injection, anatomists have been able to demonstrate the circulation of the blood, the extent of vascular supply, the anastomoses between blood vessels and the existence of end arteries. Knowledge of the ramifications of lymphatic vessels, of the independence of the blood and lymphatic systems and of the valves of veins and lymphatics has also depended largely upon injection. In addition, one may attribute to injection technics the disproval of the hollow nerves of the Galenic physiology, the demonstration of a placental barrier between the maternal and fetal circulations, and the discovery of the continuity of the duct system of the testes and of other glands. Finally, anatomical injection has led to methods for the preservation of bodies and, because of the picturesque quality of many injections, to an important pedagogical device.

During the period before Harvey, few injections had been made. Galen had inflated the cerebral vessels with air; da Vinci had filled the ventricular cavities of the brain with wax; da Carpi, in 1521, using a syringe, had injected the renal vessels with water; and Massa, fifteen years later, had inflated the tubes of the kidney with air. Other anatomists occasionally studied the distribution of blood vessels after injection.

Harvey used the injection technic in supporting his view of the circulation of the blood. In a letter defending his treatise on circulation, he mentioned an experiment in which water injected into the right ventricle passed into the lungs and returned through the pulmonary veins to the left ventricle. In 1652, Marchettis injected water into the arteries, through the capillaries and into the veins. During the first part of the seventeenth century, water, wine and air were the principal injecting media. Because they escaped too readily from the vessels, such media were of minor importance in anatomy, though they were of considerable value in physiological experiments. At this time, it was learned that air injected into the blood vessels of living animals killed them, that wine and ale injected into the blood vessels made animals drunk, that intervascular injection of drugs had a rapid physiological effect and that the injection or transfusion of blood from one animal to another was possible.

The latter seventeenth and the eighteenth century saw numerous developments in various methods of injection. The injecting of ink into the renal vessels and air and mercury into the pulmonary vessels led Malpighi to important anatomical conclusions. Willis in 1664 demonstrated with colored fluids the anastomoses of the internal carotid arteries below the brain. Robert Boyle suggested the use of injecting fluids which would later solidify, such as plaster, warm wax and

*This is one of series of historical editorials on methods and devices that have aided in the development of medicine and surgery.

gelatin. Pequet was the first to apply this method by injecting into the thoracic duct hot milk which congealed on cooling. In 1668, de Graaf published a small book on injection technic in which appeared figures of a modern syringe with long bent cannulæ which could be attached. He introduced the method of injecting adjacent blood vessels with different colors to demonstrate the extent of their supply. About the same time, Swammerdam adopted the method of injecting with colored wax, standardized the procedure and prepared permanent preparations of injected organs. The outstanding injector who demonstrated the ubiquity of the vascular system was Frederick Ruysch. He used a semi-fluid mass of white wax, suet and tallow colored by vermillion, and he preserved his specimens in dilute alcohol or by drying and varnishing. (Alcohol as a preserving medium had been known only since the time of Boyle.) Caspar Bartholin flushed out vessels with water previous to adding the injection mass.

Bidloo prepared an amalgam of bismuth and mercury for injection into the lungs. When the tissues were removed by corrosion, a cast of the cavities remained. Such anatomists as Duncan, Nuck, Cowper, Muys and Albinus routinely used colored wax, mercury and corrosion preparations for the demonstration of anatomical details. Homberg (1702) devised a metal of low melting point consisting of lead, tin and bismuth for anatomical injections. The low fusing metals, however, were used infrequently before the nineteenth century. Rouhault used gelatin or isinglass for injection. In 1733, Stephen Hales contended that the pressure of injection should be equal to the arterial pressure, and therefore he devised an injection apparatus which maintained a constant pressure. Le Cat filled cavities with wax and then sectioned the body, thus introducing the principle of paraffin imbedding. Lieberkuhn, another outstanding injector, was the first to successfully inject microscopic vessels. In the preparation of his museum, John Hunter used injections of resins, fats, glue and gelatin. Various colored metallic salts—red, yellow, blue, green, white—were introduced into the injection masses. Seventeenth century anatomists had injected the lymphatics with milk, colored watery fluids and oily masses. Nuck in 1692 injected the vessels with mercury. Paolo Mascagni (1787) produced some of the finest lymphatic injections known with mercury. Fohmann (1833) introduced the technic of random puncture for lymphatic injection. A fine cannula is inserted into the tissue at random until the injection fluid happens to enter a lymphatic vessel. When the vessel is colored by the fluid, it is followed along and reinjected. This technic has been used often by modern anatomists. The small Teichmann syringe was much used in injecting lymph vessels after 1861.

Toward the end of the eighteenth century, though anatomists continued to inject, there were fewer innovations in technic beyond the introduction into the blood vessels of preserving agents, such as corrosive sublimate and arsenic, a practice which was to lead to embalming methods in the nineteenth century. The older anatomists preferred to inject material after the period of rigor mortis and frequently the best injections were made in nearly putrefying material. Injections were made with syringes or siphon devices. In wax injection, the body or organ to be injected was warmed in a vat of heated water. A thin wax was first injected and this was followed by a heavier wax for the larger vessels. Frequently, parts needed massaging in order to permit complete introduction of the injection. For fine injection gelatin had come to be recognized as the most important medium.

With the development of the achromatic compound microscope in the first third of the nineteenth century, a new injection technic, namely microscopic injection, arose. Gross injection continued to be a popular technic, particularly as it concerned the study of the lymphatic system, although such men as Strauss-Durckheim and Hyrtl made important studies on the vascular anatomy of individual organs. The adaptation of the microscope to the study of injections required certain changes in injection methods. Gelatin, glue, glycerine and egg white were the principal media for microscopic injection, but the use of waxy, resinous or oily masses was not discontinued. The use of transparent injection masses in microscopic work proved to be better than the opaque masses of gross injection. Wood extracts, carmin and anilin colors, which were employed in staining tissues, were, whenever possible, used as colors for injection masses, though these dyes frequently diffused through the blood vessel walls. When, in the middle of the nine-

teenth century, it was discovered that Berlin blue and Turnbull blue existed in a colloidal state as well as in an insoluble form, the soluble blue colors became outstanding injecting substances. Other colloidal substances, such as Chinese or India ink, were introduced in the last quarter of the century.

A method was devised by Krause (1837) and Bowman (1842) in which a soluble lead salt and a soluble bichromatic salt were injected consecutively into vessels. The interaction of the two solutions resulted in the precipitation of the insoluble lead bichromate salt in the blood vessels. Doyère injected solutions which resulted in the precipitation of Berlin blue, silver iodide and barium sulphate. A score of years later, Key and Retzius injected clear solutions into the cerebro-spinal fluid of living animals and later killed the animals with agents which precipitated a color. By killing the animals at different times after the first injection, they were able to investigate the path of cerebro-spinal circulation. This method has been much used in establishing the pathway of cerebro-spinal circulation and the circulation of endolymph.

Robin and later Schiefferdecker injected colloidin into blood vessels. When the animal tissue was macerated away from the injecting material, a cast of the blood vessel was obtained similar to the metallic corrosion preparations of gross anatomy. In 1904, Krassuskaja and, in 1906, Huber prepared corrosion preparations using celluloid, a compound of colloidin and camphor which had been known since 1869.

In the technic of microscopic injection procedure, Strauss-Durckheim (1842), Robin (1849 and 1871), Hyrtl (1860) and Ranvier (1888) were the principal innovators. Glass syringes, fine metal and glass detachable cannulæ, syringes with two way stop-cocks for filling the instrument and apparatus for continuous injection were devised. During the latter half of the century, pressure manometers were attached to the apparatus and syringes, and a number of injecting devices depending upon hydrostatic or air pressure were used to force the injection mass into the vessels. Injections were now performed upon material as soon after death as possible. Mayer employed potassium chloride, Hill, lactic acid, and Oviatt and Sargent, amyl nitrate and ether, for dilating the vessels. When these substances were injected previous to the injecting masses or when mixed with the injecting mass, the small blood vessels were dilated and allowed the injection to flow easily. The use of anticoagulants prevented blood clotting. Camillo Golgi, in 1886, and Mann, shortly after, introduced the method of injecting preserving fluids into the blood vessels of living specimens to procure the quickest possible fixation of tissues. During the nineteenth century, the application of injection technics to microscopical investigation and the refinement of injection methods and procedures in general were the outstanding accomplishments in this field.

In the present century, four injection technics have been devised. Flint and Knower discovered methods for injecting living embryos. Spalteholtz has perfected a method of rendering tissue transparent so that injected organs may be studied without disturbing the surrounding tissues. The third technic is that of injecting preparations for x-ray study. In 1897, Stiles injected mercury into blood vessels and with the x-ray produced shadow pictures of the injected substance. The use of bismuth subnitrate and barium sulphate has largely replaced mercury and Hinman and his coworkers (1923) have adapted a colloidin injection technic to the use of heavy salts for x-raying specimens. Finally, Chambers, through his micro-injection technic has been able to introduce foreign particles, indicator solutions and chemicals into the cytoplasm and nucleus of individual living cells.

SYNCHRONOUS MULTIPARITY

(New England Medical Journal)

Despite the bursts of public enthusiasm and inspirational journalism which have attended the most extraordinary instance so far recorded of what might euphemistically be termed *synchronous multiparity*, the birth of quintuplets is nevertheless of distinct medical interest. In all medical history something over thirty cases of quintuplets have been recorded; no properly authenticated case of sextuplets. Prior to the notable achievement of Olivia Dionne, no unquestionable set of quintuplets has survived as such for more than fifty minutes. At the time of writing, the Canadian quintuplets, weighing a total of thirteen pounds at birth, have traveled in each other's company, their ranks unbroken, through this vale of tears for fifteen days. Perhaps they are aware of their goal and are striving for its attainment—exhibitionism on a family pedestal in the World's Fair at Chicago.

According to Professor Alan F. Guttmacher of Johns Hopkins University, multiple births are most likely to occur between the ages of thirty-five and forty. The mother of our present quintuplets is an exception to the rule, boasting only twenty-four summers; seven less than her husband. The rarity of birth multiplicity increases, obviously, with the number of babes at the birth. W. W. Greulich, of the

University of Colorado, studied 100,000,000 births, establishing one in 87 as the chance for twin births. The square of 87, or 7,569, gives the chances in favor of triplets; its cube, or 658,503 the chances in favor of quadruplets. If this rule continues to hold true in the higher registers, quintuplets should make their appearance once in every 57,289,761 births!

The chances of all five surviving the period of infant mortality, at this rate, would require an array of digits so far known only to astronomy.

AN ALIBI

A card expert is reported to have said that one who cannot control his temper will never be a success at Bridge. A poet of the Manchester Guardian has seized upon the thought and presents the readers of that periodical with the four verses here printed. They are reproduced here in the hope that they may supply the necessary alibi for some member of our profession who is asked to make a fourth at the Bridge table.

As one whose mind (for so I find) is stupefied by cards,
I note that chairman's statement with the kindest of regards;
For half an hour at whist or bridge (I here and frankly tell ye)
And my poor brain beneath the strain goes wambly like a jelly.

Yet people come and ha and hum with "Make a fourth at bridge?"
And I must pout and feel about the size of flea or midge;
I wanly say "I do not play," whereat they look surprised;
I'm left exempt, but their contempt is not at all disguised.

But now one sees a better wheeze instead of that old whine.
And when they come, why, "Fee, fo, fum!" shall be my bolder line.
Thanks to the hint the papers print from that bridge-playing boss
I shall thwart their scheme and my self-esteem will not be at a loss.

To him who bids me "make a fourth" the lay will be: "My lad,
I simply dare not play at cards—my temper is too bad.
Bridge, did you say? Away, away!—before I cut up rough,
And run about and roar and shout and do my caveman stuff!"

NEW YORK HOSPITAL PRACTISES MEDICINE

(New York Times)

In a radical departure from the usual American hospital practice, a plan was announced by the Sydenham Hospital last night to give white-collar workers earning less than $5,000 a year the privilege of three weeks' hospitalization for $10 a year. Such patients will receive all treatments at costs, with the understanding that the maximum fee for any one patient will not be more than $100.

Simon Bergman, president of Sydenham Hospital, one of the institutions approved by the American College of Surgeons, announced the plan last night at the annual dinner of the hospital at the Biltmore. He also revealed that a banking institution has provided facilities whereby patients may pay for hospitalization care in $2 weekly instalments, as a further aid in the move to reduce hospital costs.

"Our aim is to help the group commonly called the white-collar class," Mr. Bergman said. "By means of our plan they will be able not only to afford hospitalization but also to maintain their self-respect.

"Our group hospitalization plan will include only single persons not earning more than $3,000 and married persons earnings not more than $5,000 a year. Persons in the group-plan for the payment of $10 a year will be assured of a three week stay in our semi-private pavilion should they need hospitalization.

"For the first three weeks of their stay the members of this group will not have to pay any fees for their stay in the hospital. All the necessary x-ray and other laboratory work will be given at cost. In cases where an operation is necessary, there will be no charge made for the operating room or anesthesia. The physicians on the staff of the Sydenham Hospital have organized and are coöperating with this plan."

The $100 maximum fee will include any major operation, according to Mr. Bergman. Should a second operation be needed there will be no extra charge.

The new plan will be put into effect by next Fall, Mr. Bergman said.

—*New York Times,* April 15, 1934.

CARBON DIOXIDE AND OXYGEN IN OBSTETRICS

W. T. McConnell and Roland L. McCormack, Louisville, Ky., point out that three years of oxygen administration (1928-1931) with some means of artificial respiration failed to decrease the mortality rate in the asphyxias or to overcome atelectasis, the forerunner of pneumonia. Carbon dioxide alone was obviously not used; but the use of variable mixtures of carbon dioxide and oxygen, from 5 to 30 per cent of carbon dioxide, with a full complement of oxygen, for the past two years in their practice of obstetrics and treatment of the new-born enables them to say that they have not failed to resuscitate a single asphyxia patient except one with cerebral hemorrhage and one with a congenital abnormality of the heart. They have had no atelectasis that was not easily controlled with the mixtures and have had no subsequent bronchitis or pneumonia. Similar treatment of the new-born in the obstetric service at the Louisville City Hospital, for the past year, has yielded equally good results in respect to neonatal pulmonary complications. Their routine neonatal treatment of premature infants includes the administration of 5 per cent of carbon dioxide and 95 per cent of oxygen into a tent for a few minutes three times a day. The length of time of each treatment is determined by the respiratory response of the patient, but the average is about fifteen minutes. The development of shock during anesthesia and following the emptying of the uterus is mainly due to the anesthetic or to fatigue, or to both. In the authors' private work they have adopted the plan of administering a few inhalations of carbon dioxide and oxygen immediately following the expulsion of the placenta and they have had no undue bleeding from the placental site in any of these cases in two years. In the hospital they have, for the past several months, employed carbon dioxide and oxygen inhalations as a routine in all cases of profuse bleeding from the placental site following the expulsion of the placenta. Records on twenty-five such cases show uniformly good results. Carbon dioxide and oxygen mixtures safely and promptly combat uterine inertia in the first stage of labor, and abdominal distention following cesarean section is promptly relieved.—*Journal A. M. A.*

MICHIGAN'S DEPARTMENT OF HEALTH

C. C. SLEMONS, M.D., Dr.P.H., Commissioner
LANSING, MICHIGAN

COMMUNICABLE DISEASES

During the months of May and June, typhoid fever showed some increase. Most of the cases were sporadic and scattered throughout rural Michigan. The greatest concentration of cases was in the city of Jackson and vicinity. An investigation is under way to determine the cause and to learn whether there is any common source attributable. Neither the public water supply nor any milk supply is under suspicion. Although the outbreak is apparently past, the investigation is continuing and all cases will be followed through completely.

Scarlet fever, after a season of exceedingly high prevalence, is rapidly declining as judged from the number of reported cases. The year promises to show the highest number of cases on record.

VISITORS

During June the Michigan Department of Health had six Fellow visitors from the Rockefeller Foundation. These men have been students at either the Johns Hopkins or Harvard Schools of Public Health, and have spent from two days to two weeks studying the work of the state department as well as the county health departments. With the exception of one Fellow, all visited at least three county health units.

The visitors were as follows:

Dr. R. W. Ball, Health Officer, Richland County, South Carolina
Dr. N. C. Knight, Director, Sunflower County Health Department, Mississippi
Dr. B. Newsom, Seattle Health Department
Dr. L. L. Parks, County Health Officer, Alabama State Health Department
Dr. C. J. Vaughn, Director, Holmes County Health Department, Mississippi
Dr. H. M. Johnston, Jamaica.

SUMMER CONFERENCE FOR HEALTH OFFICERS

A Summer Conference for Health Officers was held at Clear Lake, summer camp of the W. K. Kellogg Foundation, on Friday and Saturday, June 15 and 16, sponsored by the Michigan Public Health Association and with the Kellogg Foundation as host. Forty-five county, district, and city health officers and guests were in attendance.

The Administrative Aspects of Tuberculosis Control occupied the opening session on Friday morning, with special attention to the provisions of the tuberculosis law and to the results of the tuberculin testing and x-ray program that has been carried on by the Michigan Tuberculosis Association. T. J. Werle, Executive Secretary of the Association, presented the work of his organization.

At the evening session, Dr. Haven Emerson of New York, President of the American Public Health Association, was a guest and talked informally of the present poliomyelitis outbreak in California, the encephalitis epidemic in St. Louis, and the varying opinions as to the advisability of vaccinating children against tuberculosis with B.C.G. The speaker of the evening was Dr. Bruce Douglas, President of the Michigan Tuberculosis Association, who discussed the case finding program of the Association.

Everyday Problems in the Handling of Communicable disease, Pre-school Child Health Program, and Methods of Enlisting Community Coöperation were topics of the closing session on Saturday morning. In the discussion of undulant fever, coöperation with the State Department of Agriculture received special consideration.

CHILD HYGIENE NOTES

Dr. Ida M. Alexander has resumed her field work following an absence of six months due to a fractured femur. She has begun a series of women's classes in Huron County, where she will be located for a period of five weeks.

A five weeks' series of women's classes is being carried on in Mackinac County by Dr. Lavinia MacKaye, who is substituting for Dr. Goldie Corneliuson. At the completion of the Mackinac County classes, Dr. MacKaye will give a similar series in Iron County.

Summer programs in infant and child welfare are being carried on in Cass, Washtenaw, and Clinton Counties by staff nurses.

Martha Giltner, R.N., will complete her six months prenatal nursing service with the Kent County Health Unit July 16, and from Kent will go to Genesee for a similar program in that county.

GENERAL NEWS AND ANNOUNCEMENTS

Dr. Hugh Stalker of Detroit is spending the summer in London, England, taking special work on diseases of the heart.

Dr. L. M. Sa'di of Detroit is on a three months' European trip where his itinerary will include France, Spain and Switzerland.

Dr. Lawrence Reynolds of Detroit is in Switzerland attending the International College of Radiologists. Dr. Reynolds as editor of the *American Journal of Roentgenology* represents the national organization in this country.

One hundred forty-four new members have been added to the membership list of the Wayne County Medical Society during the past year, July 1, 1933, to June 1, 1934. In addition to this number were fifteen associates and six honorary members.

The Detroit Branch of the American Urological Society held its annual meeting in Detroit on June 20 when the following officers were elected for next year: President, Dr. Wm. E. Keane; vice president, Dr. Robert S. Breakey of Lansing; secretary-treasurer, Dr. George C. Leckie; Executive Committee, Dr. John C. Dodds of Detroit and Dr. Read Nesbitt of Ann Arbor. The afternoon was spent at the Detroit Golf Club followed by dinner at 6:30 P. M. and the scientific meeting in the evening.

Within the past month a questionnaire was sent to the members by the Elections Committee of the Wayne County Medical Society. A little over 300 replies were received. The questions and numbered replies received to them were as follows: (1) Do you wish the Wayne delegates (to the annual meeting at Battle Creek in September) to oppose the action of the Michigan House of Delegates with reference to an experimental plan of insurance? Yes, 265; No, 51. Do you wish the Wayne Delegates to use their own judgment? Yes, 144; No, 145.

The Detroit Branch of the American Urological Association held their final meeting of the season on Wednesday, June 20, 1934, at the Detroit Golf Club. Golf was played in the afternoon, followed by a dinner in the evening.

The following officers were elected for the coming year: President, Wm. E. Keane, M.D., Detroit; vice president, Robert S. Breakey, M.D., Lansing; secretary-treasurer, George C. Leckie, M.D., Detroit; Executive Committee, H. W. Plaggemeyer, M.D., Detroit; Reed Nasbitt, M.D., Ann Arbor, and John C. Dodds, M.D., Detroit.

GENESEE MEDICAL SOCIETY ENTERTAINS OAKLAND

Members of the Genesee County Medical Society were hosts to the Oakland County Medical Society June 20, with a morning program of clinics and demonstrations at Hurley Hospital and an afternoon of recreation at the Flint Country Club. About 150 physicians and surgeons attended.

Dr. Ray S. Morrish, president of the local society, was in charge of the program and the Hurley Hospital staff presented the surgical clinics and medical demonstrations. Five physicians demonstrated medical treatments and 14 performed operations. Luncheon was served at the hospital at noon.

The operation clinics were conducted by Drs. H. E. Randall, Max Burnell, Gordon L. Willoughby, George J. Curry, C. W. Colwell, W. H. Winchester, F. H. Steinman, Ray S. Morrish, William P. Boles, Arthur H. Kretchmar, L. L. Willoughby, C. P. Clark, Alvin Thompson and W. W. Stevenson. The medical demonstrations were by Drs. F. W. Baske, Lafon Jones, M. S. Chambers, Glenn E. Drewyer and W. H. Winchester, the latter two demonstrating pneumothorax treatments of pulmonary tuberculosis.—*Flint Daily Journal.*

DR. O'REILLY HONORED

Dr. William J. O'Reilly of Saginaw was honored by twenty-seven members of the staff of St. Mary's Hospital, Saginaw, who met July 3 at the doctor's home, 832 Hoyt Avenue. The occasion was Dr. O'Reilly's seventieth birthday. He was a member of the hospital staff for thirty-nine years, nine years of which he served as chief. The dinner was planned by Dr. O'Reilly's daughters Mary, Margaret and Frances and Mrs. H. T. Keim of Detroit. The toastmaster was Dr. Rockwell M. Kempton of Saginaw. Among the speakers were Dr. M. D. Ryan who recounted many interesting incidents in connection with Dr. O'Reilly's career in Saginaw, and Dr. Walter Slack who traced Dr. O'Reilly's life in photographic lantern slides from early life. The *Saginaw Daily News* commenting editorially contained the following:

> "Dr. O'Reilly for many years has been one of Saginaw's outstanding physicians and not only in his service as a member and chief of the St. Mary's hospital staff but in his general practice he has won the respect and high regard of thousands of Saginaw people.
>
> "A representative of the old school of physicians, Dr. O'Reilly has given a service to the community that is representative of the highest ideals of his profession and the tribute paid him by his fellow physicians will be echoed by the citizens of Saginaw."

The JOURNAL of the Michigan State Medical Society joins in congratulating Dr. O'Reilly and wishing him many more years of service and happiness and friendship.

UPPER PENINSULA MEDICAL SOCIETY

The thirty-seventh annual meeting of the Upper Peninsula Medical Society will be held at Ironwood, Michigan, August 16 and 17, 1934, under the auspices of the Gogebic County Medical Society. The officers for the current year are: Drs. John J. Walch, president; Frank G. H. Maloney, vice president; Frank L. S. Reynolds, secretary. The program is as follows: "Address of Welcome"—Dr. Frank L. S. Reynolds, superintendent, Grand View Hospital; Dr. Frank G. H. Maloney, president, Gogebic County Medical Society; "Response and President's Address"—Dr. John J. Walch, president, Upper Peninsula Medical Society; "The Differential Diagnosis of Common Neurological Conditions as Met with in General Practice"—Dr. John L. Garvey, Milwaukee; "Management of Hypertension"—Dr. Charles L. Brown, Associate Professor of Internal Medicine, Ann Arbor, Michigan; "X-ray Diagnosis of Chest Lesion"—Dr. Gage Clements, roentgenologist to St. Luke's Hospital, Duluth, Minnesota; "Indications and Technic of Blood Transfusions"—Drs. John S. Lundy and Ralph M. Tovell, The Mayo Clinic, Rochester, Minnesota; "Injection Treatment of Hemorrhoids"—Dr. Walter A. Fansler, Minneapolis; "Sinus Infection—Diagnosis and Treatment"—Dr. Bert E. Hempstead, The Mayo Clinic, Rochester, Minnesota; "Allergy in General Medicine"—Dr. Charles L. Brown, Associate Professor of Internal Medicine, Ann Arbor, Michigan; "The Technic of Nerve Blocking for Various Orthopedic Operations"—Drs. John S. Lundy and Ralph M. Tovell, The Mayo Clinic, Rochester, Minnesota.

The Program Committee, Entertainment Committee and the Ladies' Entertainment Committee have provided first class programs, including golf, cards and dinners for the visiting doctors and wives. A banquet and dance will be held on Thursday evening, August 16, at which Dr. Louis J. Hirschman of Detroit will act as toastmaster. Short snappy addresses will be delivered by: Dr. C. C. Slemons, Dr. George L. Le Fevre, Dr. F. C. Warnshuis, Dr. J. D Bruce and Hon William Comstock.

Dr. William Donald entertained the officers of the Northern Tri-State Medical Society at the Detroit Boat Club Sunday, July 15, the object being to make arrangements for the 1935 meeting, which will be held on April 9. An invitation has been extended to approximately twenty-five prominent clinicians and surgeons for the next year's program, which will be published later in this JOURNAL. The members of the committee present were: Dr. H. E. Randall, Flint, Michigan; Dr. Kelsey, LaPorte, Ind.; Dr. W. H. Marshall, Flint, Michigan; Dr. G. O. Larson, LaPorte, Indiana; Dr. P. N. Sutherland, Angola, Indiana; Dr. Lukens, Toledo, Ohio; Dr. Cassidy, Detroit, Michigan; Mr. Burns, Detroit, Michigan; Dr. Wm. M. Donald and Dr. G. E. Jones, Lima, Ohio.

TREATMENT OF ACUTE PULMONARY ABSCESS

S. U. MARIETTA, Washington, D. C., believes that more than 50 per cent of acute pulmonary abscess cases can be brought to a satisfactory conclusion by medical treatment alone. The essential feature of medical treatment is "postural drainage." The treatment is so simple that it can be carried out in the patient's home by the general practitioner so long as adjunct measures are not required. Bronchoscopic drainage is an important adjunct to the medical treatment of acute lung abscess. The recognition of the limitations of medical treatment and the decision as to when surgery is advisable are important and responsible requirements. An appreciation of the difference between acute and chronic lung abscess is necessary in order to outline and carry out treatment properly.—*Journal A. M. A.* (April 28, 1934).